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AGRICULTURAL EDUCATION AND EXTENSION IN TANZANIA

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FINAL REPORT

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GLOSSARY OF TERMS

AEE -	Agriculture Education and Extension
AV -	Audio Visual
BSc -	Bachelor of Science degree
CCEA -	Center for Continuing Education in Agriculture, Faculty of Agriculture, Forestry and Veterinary Medicine, University of Dar es Salaam, Morogoro
COP -	Chief of Party (of the Utah State University Contract Team)
DADO's -	District Agricultural Development Officers
DAEE -	Department of Agriculture Education and Extension, Faculty of Agriculture, Forestry and Veterinary Medicine, University of Dar es Salaam, Morogoro
FAF -	Faculty of Agriculture, Forestry and Veterinary Medicine, University of Dar es Salaam, Morogoro
IDM -	Institute for Development Management
IRDC -	Canadian International Development Research Centre
KILIMO -	Ministry of Agriculture (Swahili)
MATI -	Ministry of Agriculture Training Institute
MinAg -	Ministry of Agriculture
MinEd -	Ministry of Education
MSc -	Master of Science
NCDP -	National Coconut Development Project
RADO's -	Regional Agricultural Development Officers
RFP -	Request for Proposal
TanGov -	Tanzania Government
USAID -	United States Agency for International Development, office in Tanzania
USU -	Utah State University

PROJECT DESCRIPTION

This Project was designed to accelerate the Tanzania Government's (Tan Gov) agricultural development program by creating an in-country institutional capacity to train middle and upper level agriculturalists in organizational and communications skills, and to retrain all levels of existing agricultural service personnel. A major constraint to Tanzanian small farmer development has been the lack of effectively functioning and relevant delivery systems. Inefficient extension efforts by agricultural service institutions have resulted from both the inadequate numbers of capable personnel and their lack of preparation for organizing village-level activities. This lack of trained personnel (in numbers and quality) has hindered TanGov efforts to accelerate agricultural development at the village level, particularly since private commercial services of this nature are usually lacking at the village level in Tanzania. The project was located at the Faculty of Agriculture (FAF) in Morogoro, the country's only internal facility for professional agricultural training. It was originally estimated that the project would cover a total period of 48 months but was ultimately extended an additional three and one-half months.

Tasks

The project set out to perform various tasks and functions not fully effective at the time of its inception in March of 1979. These included:

1. Short-term retraining at a new Center for Continuing Education in Agriculture (CCEA) for existing agricultural staff with an emphasis on agronomic techniques, communications methods, and on organizational skills required in village production.

2. Opening up of channels of communication between the network of technical research stations and various users of technical information.

3. Packaging of recent experimental results which would benefit small farmers, into a form which could be used at the village level on a pilot basis.

4. Experimentation with new media and methods for reaching small farmers and other sections of the rural community.

5. Identification of system bottlenecks affecting the delivery of agricultural services and recommendation of actions to reduce their influence.

6. Infusion of a small-farmer emphasis into the degree agricultural curriculum through village-oriented courses and skills offered by the Department of Agricultural Education and Extension (DAEE).

7. Provision of curriculum support to lower level agricultural training institutes and colleges in relation to extension methods, communication techniques, and agricultural education.

8. Creation of an evaluative capability within the Faculty to assess extension and rural development program performance and to determine rural needs.

9. Implementation of professional level training (BSc, MSc, Ph.D.) for select agricultural staff in the above fields to create a long-term Tanzanian capability to continue this emphasis.

The Project was designed to include a heavy emphasis on practical learning and curriculum development for both the CCEA and the DAEE.

Center for Continuing Education in Agriculture

A fundamental part of the Project strategy was the development of a strong Center for Continuing Education in Agriculture (CCEA) within the Faculty of Agriculture. The reasons for locating the Project in the new Center were strong ones which had a direct bearing upon the project goals:

1. As a short-term training institution, the CCEA would be able to work with all levels of agricultural service staff determined solely by the need of any particular cadre for assistance.

2. The CCEA would be able to bridge the gap between the technical research institutes in the Ministry of Agriculture and the village development program in the Prime Minister's Office.

3. The CCEA would have direct access to the Faculty's scientists and library resources, the largest concentration of such facilities in the whole country.

4. The CCEA facilities would also encourage workshops and seminars near the sources of technical information for various field agencies.

5. Successful CCEA innovations could easily be passed on to the two other training institutions outside the Faculty located in Morogoro, representing the Ministry of Agriculture and the Ministry of Manpower Development respectively.

6. The CCEA and the DAEE would be able to share personnel in certain specialized fields such as media use and curriculum development.

Thus, the CCEA was anticipated to be the University's agricultural outreach facility. It would assemble information on agricultural research results and new technology; package it into presentation modules; disseminate it to field agriculturalists through in-service training courses; and prepare and distribute village-oriented training and demonstration materials. Its main purpose being to create a context whereby the Faculty's specialized expertise in the various scientific fields could be tapped to upgrade the skills, outlook, and knowledge of existing service personnel, already working at the village level. With only a small core of full-time permanent staff, the CCEA would therefore rely upon the rest of the FAF, the nearby Institute of Development Management (IDM)[1], the University, the Ministry of Agriculture (MinAg), parastatals, and limited expatriate consultants for visiting faculty.

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[1] At Mzumbe, about 8 miles from Morogoro.

Department of Agricultural Education and Extension

The objective was to assist the Department of Agricultural Education and Extension at Morogoro by strengthening it's rural development orientation by offering core courses in small farmer extension and organizational skills to be required of all degree level trainees in Agriculture, Forestry, and Veterinary Science and to implement a new degree major in Agricultural Education and Extension for those BSc students who would be assigned to work in the field extension services. Further, the DAEE would be assisted in developing an in-country MSc program for middle and higher level agriculturalists which would particularly emphasize the social, administrative, and communications aspects of village development. An evaluative capability for assessing extension performance and service needs among small farmers and villages was also to be created within the FAF. In addition, the project would serve to provide the academic leadership within the FAF necessary to guide and support the development of the CCEA programs.

The DAEE's linkage to village level activities was anticipated to be both direct and indirect. It was to have a direct connection through supervision of students on village level practical assignments and through applied evaluative research. It would have an indirect connection through developing improved and more relevant training for Ministry of Agriculture staff who would in turn train, organize, and supervise village level workers. The TanGov desired to use the DAEE major for upgrading existing staff in the Ministry of Agriculture Training institutes (MATI's), which are the MinAg's lower level institutes for preparing the ward and village level extension workers. Other DAEE graduates would become secondary agricultural teachers to staff the country's new emphasis upon a vocational bias in its general education. The balance of the DAEE graduates were expected to go directly into the regional and district agricultural extension services, where they would be responsible for planning and supervising the work of ward and village level agricultural service personnel.

Staffing

Long-term staff assistance. Three long-term contract personnel were to be provided: (1) an agricultural education and extension/rural sociology expert, (2) an agricultural extension/education specialist and (3) an audio visual and training aid specialist. The scope of work and qualifications specified in the Project Paper for the three positions follows:

1. Agricultural Education and Extension/Rural Sociology Specialist

The position will be in the DAEE of the Faculty of Agriculture. The specialist will serve as Deputy Head of the Department and as Project Chief of Party. This person will be responsible for the general development of the Agricultural Education and Extension course option with specific additional duties in his or her particular area of expertise. This individual will develop appropriate courses and work with the staff of other FAF Departments in introducing and upgrading agricultural education and extension training. Specific duties will include: (1) Planning curricula and courses of study; (2) Preparation of DAEE plans and budgets; (3)

Developing courses and course material; (4) Teaching undergraduate, graduate and in-service courses; (5) Planning in-service training programs; (6) Serving as Chief and Project (University's AID contract Administrator); and (7) Other duties as assigned.

The qualifications for this position are a Ph.D. in Agricultural Education or Agricultural Extension/Rural Sociology. Also required, five to ten years experience in agricultural education activities with at least three years classroom teaching experience. Experience in management/ administration of agricultural education programs at the University level is preferred for anyone expected to serve as Deputy Department Head. Experience in developing countries is desirable. Must be willing to travel within Tanzania.

2. Agricultural Extension/In-Service Training Specialist

As Deputy Director of the CCEA, the incumbent will be under the direct supervision of the Director of the Center. In general, he or she will be responsible for the development of the CCEA. This will require the development of close working links with all other FAF departments as well as links with numerous and varied outside organizations. In developing the CCEA, the incumbent will: (1) Prepare plans for the development of the CCEA; (2) Prepare budgets and financial estimates for the CCEA; (3) Plan and organize courses to be given at the CCEA; (4) Seek to publicize the activities of the CCEA; (6) Serve as CCEA Deputy Director and (7) Other duties as assigned. Qualifications include a Ph.D. in Agricultural Education. In addition, at least 10 years experience at the University level including classroom teaching and administrative responsibility is necessary. An ability to work with individuals of varying academic and professional background is required as is a willingness to travel extensively in Tanzania. Previous experience in an administrative position in a developing country would be useful.

3. Audio Visual and Training Aide Specialist

The Audio Visual and Training Aide Specialist will serve under the supervision of the Director of the Center for Continuing Education in Agriculture. In collaboration with other FAF staff members, he or she will assist in the development of an audio visual and teaching aids preparation capability at the Center. Included in the above will be the teaching, to CCEA Center staff and students, of audio visuals preparation and use. Specific duties will include: (1) The day-to-day organization and management of the audio visual facility at the Center. (2) Preparation of necessary plans, including budgets, to allow the development of the audio visual facility. (3) Preparation of audio visual and other teaching aides for use of DAEE and Center staff; (4) Teaching the preparation and use of audio visual and teaching aides to CCEA and University staff and students and (5) Teaching visual aides use to participants at CCEA training courses.

An M.S. degree in Agriculture is required; a degree in Agricultural Education is desirable. A minimum of five years' experience in the development and use of audio visual aids and teaching materials is also required. Classroom teaching and administrative experience are also

necessary. An ability and willingness to travel is necessary. Previous overseas experience is desirable but not required.

These three U.S. technicians were expected to liaise directly with the Dean of FAF, the University of Dar es Salaam Principal Secretary, the Ministry of Agriculture and the USAID Project Manager.

Short term consultancy assistance. Due to the varied nature of the Project outputs, additional short-term consultancy assistance was essential. By its nature, this assistance would have to be flexible to meet the changing needs generated by the program as it matures. For budgeting purposes, at least 18 man months of such assistance was planned for though actual assignments were expected to range from 3 to 8 weeks. Possible areas where it was felt some short-term assistance might be needed included: (1) Identification of training needs to country; (2) Design of management information systems suited to agricultural services; (3) identification of audio-visual equipment for the CCEA; (4) Graphics design for instructional materials; (5) Development of new media approaches; (6) Development of new courses oriented towards specific skills; (7) Development of evaluation criteria and instruments, and (8) Statistical processing and analysis of field research data.

Utah State University was expected to provide these short-term personnel from internal resources within the University wherever possible.

Contractor

The contractor, Utah State University (USU), was expected to furnish qualified technicians to fill these roles. Technical support for the Project, including recruiting of long-term and short-term staff, was to be provided by the Department of Sociology and the University Extension Office. In addition, the contractor was to have major responsibility for the institutional development project, for recruiting all technicians, for implementing and arranging participant training programs and for purchasing project commodities. The contractor was also to prepare an annual budget and generally coordinate project matters between Tanzania and Washington. However, as will be discussed, these obligations were to change as USAID elected to assume some of these responsibilities.

PROJECT HISTORY

Activation of the Contract

Utah State University (USU) received notification of its selection as contractor for this project in March of 1979. In May, the USAID Mission in Dar es Salaam proposed several changes that reduced the contractor's responsibilities from those outlined in the RFP documents which had served as the basis for Utah State's proposal. The two major changes were: 1) the transfer of participant training to USAID, and 2) the transfer of commodity purchasing (principally the audio-visual equipment) to the USAID/Dar es Salaam Mission.

The USAID Mission requested these changes to speed the initial launching of the Project, which had already been delayed more than a year from the signing of the bilateral Project Agreement. The Mission argued that more than 6 months could be saved if they proceeded to place participants for training and to order audio-visual equipment in advance of the finalization of a contract with Utah State University. Since these two functions had been specified in the RFP as the contractor's responsibility, USU urged for their retention within the contract, but the Mission did not agree. The repercussions of this decision are discussed at length in a later section.

The final version of the contract for the Project was signed by USU's representative on 30 August, 1979 and by USAID/Washington's representative on 5 September, but it was not received back at USU until the 31st of October, 1979. The original contract specified September 15, 1979, as the data for the initiation of the Project in regard to contractor's obligations, and the 14th of September, 1983 as the closing date.

Project Staffing.

Dr. Jon Moris of USU was approved as the Chief of Party and rural sociologist and Dr. David Giltrow as the audio/visual specialist. Moris went to Tanzania in December, 1979 and Giltrow arrived in January, 1980. Moris also served as the Head of DAEE. Due to a medical problem Dr. Moris was forced to return to the U.S. at the end of June and Dr. James Brain was identified as his replacement as rural sociologist. Professor Moris, however, continued to provide short-term assistance in Tanzania and upon his return served as USU Campus Coordinator until September 30, 1982. Giltrow assumed Chief of Party responsibilities as of April 1st of 1980 and Brain arrived in early July of 1980. All three of these men had previous East African experience and competence in the Swahili language.

There was a delay in the appointment of the long-term staff member in the extension position, as USU's original nominee was not accepted by the University of Dar es Salaam's Appointment Committee. Courtney Brewer was then proposed by USU in June of 1980 and finally confirmed in October and arrived in Morogoro in November. He was appointed CCEA Deputy Director.

Brain resigned his post effective August of 1981 leaving the project without a rural sociologist for 4 months until Dr. Barton Sensenig arrived in December of 1981 to fill the position.

A variety of consultants also contributed to the project. Dr. Trina Laya-Sensenig was appointed consultant on Women in Development food related issues in June, 1982 and in this capacity worked for the duration of the project. Other consultants included Dr. Gilbert Long, Head of the Agricultural Education Department at USU; Don Smellie, Head of the Instructional Technology Department at USU and Nick Eastmond, Assistant Professor of Instructional Development at USU.

DAEE

The DAEE was established at the FAF in 1976 to meet the need for a third year option in agricultural education. Before this time it was part of the Rural Economy and Extension Department. It began with just 5 staff members and by 1983 developed to 12 academic (not all in-country) and 11 administrative and technical staff members. In 1977-78 and 1978-79 there were a total of 9 option students. There were no option students again until 1981-82. That year there were 3 BSc students and in 1982-83 there were 7 BSc students. However, in 1983-84 there were no option students as a result of some bad publicity concerning a delay in completion of course work for the 7 in 82-83 (due to misconduct by another department). Despite the fact the option did not attract as many students as anticipated the faculty taught many service courses to a number of students at the FAF (eg., 210 students, with 6 teaching staff in 1981-82; and 308, with 7 teaching staff, in 1982-83. This program represents Tanzania's only internal BSc training in agricultural education. Tanzania has a mandatory system for human resource allocation and has put a high priority on agricultural and scientific training; thus, this program should grow in the future. All of the students in such training are bonded to subsequent public service for 5 years after receiving their degrees.

In addition to teaching, a major role of the Faculty is working with nearby villages and small scale farmers through an extension program. Furthermore, the faculty is linked to the CCEA to provide opportunities for continuing education to agricultural field staff and to improve agricultural education in Tanzania. For an elaboration, Annex A provides DAEE annual reports for 1981-82 and 1982-83. Annex B includes the curriculum for the DAEE option.

CCEA

The facility was established via a collaboration between USAID and the Ministry of Agriculture. The Center began offering programs in March of 1981, prior to completion of the physical facilities in September of 1982. The first course held in the new building was in November, 1982. The purpose of the Center is to serve as an outreach arm of the Faculty by providing facilities and services for short and refresher courses, workshops, seminars and extension activities. The Audio Visual Unit is available to both Faculty, Center users and the community.

The completed facilities include a Conference Hall for groups up to 100 in number; an audiovisual classroom for up to 30; a small meeting room

for up to 15 and a hostel for up to 24. The hostel will eventually be expanded (Phase II) to accommodate up to 64 with a self contained kitchen, dining room, and lounge. Also, included in Phase II planning are four additional classroom/meeting rooms expected to be completed by 1985.

Typical users include: parastatals, ministries, international agencies and faculty. Annex C includes background information on the Center, a fact sheet, a paper regarding the Center presented by B. Sensenig at the National Council for Agricultural Education at Tengeru and newspaper publicity concerning the Center.

This project was designed to incorporate the DAEE as part of the CCEA, the DAEE to be housed as an integral part of the Center and the Audio Visual Unit to be common to both programs. Also roughly half of the DAEE positions were expected to have joint appointments with the CCEA. Close coordination of the two programs is mandatory. The CCEA has, and will, rely heavily on the DAEE staff to develop and present short courses and the DAEE will rely on the CCEA to conduct workshops and seminars for their field extension and training staff.

Project Activities

The following is a synopsis of activities from the inception to the conclusion of the Project. This section was derived from the COP reports. The reports themselves offer much greater detail.

March 1979 - March 1980

Meetings. The project was fully introduced to senior Tanzanian Government officials, in particular the Chief Academic Officer of the University of Dar es Salaam and the Dean of the FAF. Project supervisors were fully briefed, Ron Harvey (USAID Project officer at Mission) at the USU campus and Yun Kim (USU Technical Director for Project) in Tanzania.

Teaching/Workshops. The program began on time for the new academic year in Morogoro with Moris teaching four DAEE courses. A joint workshop on Evaluation of Agricultural Teaching was held in cooperation with the Ministry of Education (Min Ed). A modest program of in-service training was begun by Giltrow for the Tanzanian Staff of the FAF's audio visual services unit. Teaching materials relevant to village development and a small farmer emphasis were assembled and organized in support of the main DAEE courses to be offered under the project. Liaison was established with the USAID Training for Rural Development Project, and case materials were provided to assist them. Further, the DAEE began a series of Working Papers to provide bibliographic and other assistance to outside institutions and projects. Detailed specifications and a phasing according to priority was worked out for all audio-visual items to be supplied under the project.

Training of Tanzanians. Three Tanzanian participants left for U.S. training in mid-1979 and another eight were recommended to begin training in mid-1980. The lateness in the signing of the contract resulted in a delay of 6 months to one year in sending participants to the U.S. The

USU field team determined there was a greater need for Ph.D. level training than earlier suggested. The original recommendation was for 10 M.S. level and 6 Ph.D. level participants. The team requested of the Mission a change to 2 M.S. level and 10 Ph.D. level participants and 4 training years. This was approved.

Problems. Major problems, related to unanticipatedly high rates of inflation in Tanzania affected the implementation of the project in the first year. Among other things, this resulted in only enough funding to build two technician's houses rather than three so alternative financing had to be sought.

In regard to the CCEA, being constructed under funds channelled through the Manpower Development Division of the Ministry of Agriculture, inflation resulted in the building of only Phase I. The seminar rooms, two-thirds of the hostel, three houses for senior TanGov staff and the furniture and equipment all had to be postponed into Phase II which was not funded at that time. Further, a severe shortage of cement for construction in Tanzania delayed completion of Phase I more than a year, forcing the USU team to utilize other facilities until completion of the Center.

Other problems centered on USAID not following through various responsibilities. USU had been told in August of 1979 that project vehicles had been ordered, that funds had been released to begin the three houses and that the entire audio visual order had been placed. However, this was not the case. Thus, when Moris arrived in December, there was no housing or transport available and he was forced to make arrangements on his own, as was Giltrow on his arrival. It was not until March 1980 that USAID released the funds to begin construction of the two houses and the first vehicles were not delivered until September of 1980!

April 1980 - September 1980

Meetings. Liaison with other related USAID projects was initiated to assist in determining CCEA program activities and services. The Team Leader attended periodic briefing meetings of USAID and Ministry of Agriculture (KILIMO). Also several informal meetings were held with the KILIMO manpower training officer. Contacts were established with Ilonga Research Institute, Kilosa District. USAID/WVU Farmer Training Project members met on numerous informal occasions with the USU team during their one month orientation program in Morogoro, discussed future joint cooperative activities. Village visits were begun in association with the DAEE Village Research Project. DAEE members began work on the Department's five year plan; this included curriculum review. Brain developed and conducted a survey of students' attitudes toward the agriculture education option to assist in planning.

Teaching/Presentations. DAEE members (including Giltrow and USA-bound participant, Mattee) completed basic guide to evaluation of agricultural education in Tanzanian Secondary Schools on behalf of Ministry of National Education. Giltrow gave four presentations at two teaching improvement workshops sponsored by UDSM's Teaching and Learning Centre. Also, course evaluation tally forms were designed at the request

of the Faculty Board. Moris continued to organize and develop DAEE course materials and handouts and Brain initiated lectures and discussions on local cultural topics.

Audio Visual Unit. Giltrow began work on a major audiovisual presentation related to agriculture production activities for Ministry of National Education. The Audiovisual Unit assisted in the preparation of major exhibits: Peasants Day in July; 10th Anniversary Open Day for UDSM in August. DAEE exhibit at the latter was well received. USAID Deputy Director, ADO, and three Project Officers attended Open Day. The Audiovisual Unit gave major assistance to the Second Symposium on Intercropping for Semi-Arid Areas (SISA), an important international meeting on the topic. Brain attended and contributed to discussion. The Crop Science Department requested six months part-time inservice training in audiovisual methods for one of their technicians; the unit agree to provide this training.

Training of Tanzanians. The three students in the U.S. (Rutachokozibwa, Mvena, Kavishe) continued their studies under Project auspices, upgraded to Ph.D. The Chief of Party devoted much time to the elaborate procedures required for participant departures as many bureaucratic obstacles were encountered. Five new participants left Tanzania to begin studies in the U.S. (Mattee, Madalla, Maeda, Mrema, Semu). Thus, nearly all designated participants had been sent to the USA by this time.

Equipment Construction. While construction work on the Centre was virtually nonexistent during this period, planning and purchasing of furniture for the Centre was initiated by using local funds from the DAEE. The Chief of Party attended Site meetings and University Briefing Committee meetings on the Centre and housing construction. The ground was finally broken and sites cleared for staff housing construction to begin in September. Planning of Centre facilities to house a Ford Foundation-supplied minicomputer began in conjunction with the Rural Economy Department. During this period, a vehicle agreement was signed by UDSM, USU, and USAID laying out the conditions of usage of USAID-supplied vehicles. The logistical and support activities of staff members was considerably eased by the arrival of two Project vehicles (one DAEE, one staff) at the end of this period. A third landrover for Centre use also arrived in-country but was not put into service pending need. In the absence of the anticipated USAID-supplied audiovisual materials, USU purchased specialized black and white slide-making equipment.

Problems. Several problems were encountered during this six month period. One related to no students electing to take the AEE option in 1981. A survey was conducted to attempt to understand why and indicated students were not interested in secondary school teaching and felt they needed a strong technical degree before focusing on Extension or agricultural education. The DAEE was founded with an agreement with the ministry of education that all graduates would be hired as secondary education teachers of agriculture. The survey suggested the students wanted to work for Min Ag and not Min Ed. Teaching has lower status. Further, it was believed that offering of instruction in the US under the USAID training for Rural Development Project for KILOMO trainers diminished the need for the emphasis at Morogoro.

Training of DAEE staff in audiovisual methods was problematic as Mr. Madalla, who eventually assumed these duties, was in the U.S. at USU working on his Ph.D. Another problem in the audiovisual unit related to the lack of film and paper. Moris donated a 35 mm. camera and lenses before he left. It was very frustrating that USAID neglected their responsibility for ordering the agreed upon commodities and equipment. Finally, there was a great deal of confusion between Logan, Dar, Morogoro and Washington as to who would specify what was to be ordered, who would purchase goods and ship them.

The protracted construction of the Centre Complex continued to be a problem. Another delay, also beyond control of the USU team, was the long wait for the appointment and arrival of Courtney Brewer, the extension specialist and Deputy Director of the Centre. Brewer did not arrive until nine months after the original candidate was nominated by USU. This served to postpone, to some extent, planning services to be offered by the Centre.

Some of the other problems during this time period included: delays in the delivery of project vehicles (they were expected in July but arrived in September); the expected baseline study on agricultural manpower was not available for analysis for Centre/DAEE purposes; Moris' state of health (combined with lack of transport) precluded his expected visits to RIDEP's and other work on DAEE outputs; and physical communication problems between Morogoro, Dar and Logan.

October 1980 to March 1981

Courtney Brewer arrived in November to serve as extension specialist.

Meetings/planning. Planning began for a CCE Users Meeting to be held following the Centre's Steering Committee's initial meeting. Recommendations were provided to Shinyanga/Mwanza RIDEP for Regional Extension and Training Materials Production Centre. The CCE functions were described during a presentation to a Ministry of Livestock Production (MIFUGO) training review meeting in mid-February. Staff members joined the interdisciplinary team advising IDRC sponsored Farming Systems Research Project in Rural Economy and Crop Science Departments. A Centre Policy Paper was developed for formal discussion by Faculty Board and University Senate. A Steering Committee composed of Faculty and ministerial representatives was proposed which would provide Policy Guidelines. The position of Centre Director was re-advertised nationality was a disappointing response. Village visits were continued, especially for Brewer's orientation to rural development issues. An informal meeting was held with Project Director of the Farming Training Project, (Robert Maxwell, West Virginia University). It dealt with inter-project matters and with the Agricultural Sector Manpower Report (WVU/USAID/Kilimo) and its implications for the Project, DAEE, and CCE.

Teaching, presentations. Brain and Giltrow both offered courses; DAEE curriculum revision continued and an exploration of an international study component was begun for M.Sc. DAEE staff agreed to co-sponsor a one-week extension management course for District and Regional

Agricultural Officers together with Uyole Agricultural Centre Extension Division; this course began at the end of this period, with Brewer as one of two major organizers. A three week course in extension teaching methods was offered by Brain in December to extension workers under the auspices of the CCE and Tanga Integrated Rural Development Project. Brain gave a presentation on the community development aspects of afforestation at the International Workshop on Afforestation in Arusha, in December. Assistance was given to three village level seminars. The CCE undertook joint sponsorship of a major national conference on Farming Systems Research in Tanzania together with Tanzania Agricultural Economics Society; USAID agreed to underwrite the costs. Brain participated in three FAO-sponsored Family Life and Resource seminars at the village level in various parts of Morogoro Region. The collection of baseline data and development of output indicators was developed during this period.

Audiovisual Unit. Audiovisual services was expanded to include limited local processing of 35 mm color slide film. Slides were produced from several area villages on behalf of the Rural Economy Department for presentation at FS Conference. An additional technician from the Soil Science Department began in-service audiovisual training with Giltrow. Extensive (3,100 miles) audiovisual production travel was undertaken in October and November. Script and 650 slides on agricultural production activities in secondary schools were provided to the Ministry of National Education for an international conference and later for teaching activities at the Faculty. This was also a training exercise for Mr. Mwenga, the unit's photographer.

Training of Tanzanians. Another participant (A. B. Mushi) was sent to the U.S. for M.Sc. training in Agricultural Education. Three more were expected to leave for the September, 1981, term. While the COP was in the U.S. in December, he met with three participants to assess their progress; he talked with two others by telephone. All were found to be making very good progress.

Construction. Construction site meetings on the Centre complex were attended on a regular basis by Project staff; CCE construction continued at a slow pace, but faster than in the previous six months. Staff housing was nearly completed by the end of this period. Additional furniture for the Centre was ordered using local funds. Preliminary agreement was reached between Kilimo and USAID to fund Phase II of Centre complex.

Problems. During this period very little was done to procure the project related audio visual equipment and supplies. The USAID decision to take this responsibility from USU requires the Mission's Project Officer to act as a purchasing agent for a large number of complex items some 10,000 miles from the project. Other delays included: houses, station wagons and Centre completion.

The lack of a completed CCEA facility continued to be a problem particularly when trying to hold short courses. Also, the Director's position remained unfilled and the CCEA still did not have its own budget at this point. The Centre was not divided from the DAEE despite the fact it would be self supporting.

Certainly the most serious problem during this period was Brain's decision to leave effective August, 1981, and concern about a replacement. Another problem was the medical evacuation of Mrs. Brain to Europe. He accompanied her.

The difficulties in communicating between Dar and Logan continued in this period but an agreement was made for the project to fund a telex installation at the Faculty.

Finally the fact that no third year students elected the AEE option required modification of the DAEE's role and curriculum emphasis.

April 1981 - September 1981

Professor Brain returned to the U.S. in July of this period and Professor Sensenig was nominated to fill his position following in-country interviews. The job description was altered to included farming systems. I.J. Lupanga, former participant under the Agricultural Manpower Project, was designated Director of CCE and also Acting Head, DAEE in May.

Meetings. An FAO consultant and the Assistant Director of Technical Services, Kilimo, visited to discuss a short course for Regional Publicity officers in 1982. The DAEE participated in an extension management meeting in Mbeya. A three day meeting with farmers was held as part of the Village Research Project and CCE. Contact was made with Monduli College of National Education where one wing trains agricultural secondary school teachers to discuss a possible DAEE collaboration. A Steering Committee for the CCE was established by the Faculty Board and met in August to consider policy and procedures. A visit to was made to Arusha to establish linkages between CCE, other training institutions and ARVDP.

Consultants. Professor Moris resumed his teaching role and curriculum materials completion during a three month visit. Three other USU consultants also went to Morogoro during this period. Gilbert Long, Head of the Agricultural Education Department at USU, visited the site on a three week consultancy on various DAEE and CCE topics in July. Don Smellie, USU Instructional Technology Department Head, visited on an 18 day consultancy on Audio-visual Unit and CCE topics in August. Nick Eastmond, Director of Northern Rockies Consortium for Higher Education, also visited in August to advise on evaluation procedures for CCE and instructional development activities. Smellie and Eastmond drafted a proposal, while in-country, for USU to prepare an extension package on cowpeas as part of the CCE mandate to assist in the development of extension packages: Technical materials resulted from the USAID-assisted Agricultural Research Project and Ministry of Agriculture effort at Ilonga Agricultural Research Institute.

Teaching/Curriculum. Professors Brain and Morris taught DAEE service courses. Curriculum revision for DAEE continued with the assistance of Professor Long with the final version to await decision by Ad-Hoc Committee considering all options and consideration of changing to a four year degree. DAEE drafted recommendations on third year option studies for Ad-Hoc Committee for Faculty Board. Giltrow participated in interviewing second year students on option selection for 1982. DAEE

members participated in MATI curriculum revision meetings; as a result the CCE co-sponsored a MATI tutors' workshop in extension and rural economy in October. Brewer led the planning of six short/medium courses to be offered in the next six months for CCE. CCE assisted in medium term training to two project planning specialists from the Prime Minister's office (with Rural Economy Department).

Workshops/Papers. The CCE (funded by USAID) co-sponsored a Farming Systems Research Conference in Arusha with 180 participants. Also assisted in an Extension Management Workshop for DADO's and RADO's at Uyole (23 participants). Also a four day workshop was held for village leaders/farmers with 43 participants. The DAEE staff completed a position paper for review of Tanzania's extension policies by CCM (nation's political party and main initiator of national policy. Giltrow served as Faculty Representative to World Food Day Committee and coordinated display preparation. Brain delivered the Professional Lecture and continued to give outside lectures in the community and at the Expatriate Workers Orientation Centre.

Audiovisual Unit. Giltrow prepared a report on audio-visual equipment and usage at Monduli Rural Training Centre for the USAID office in Arusha and helped to organize a four day audio-visual workshop for first and second year agricultural students. Specialized photography was provided to several teaching staff writing journal articles on scientific topics. Black and white slide making technique was perfected to facilitate local production of black and white slides for instructional purposes.

Training of Tanzanians. Two participants (Sibuga, Dihenga) departed for the U.S. in June and September and one returned in August after receiving the M.Sc. in Agricultural Education (Rutachokozibwa). He would return for Ph.D. studies next year. Two additional participants (Semu, Mrema) returned after one year of special studies in soil science.

Building and Equipment. Staff continued to purchase furniture for the CCE. Brewer provided a detailed list of equipment items for the completed CCE complex to Ministry of Agriculture. In May the DAEE/CCE staff moved into a temporary suite of offices and conference rooms in advance of the completion of the Centre. By August the construction of the CCE buildings was progressing well and nearing completion; also the first Hostel block was completed and handed over to the University. Furniture and equipment for the Hostel were purchased. Planning of Phase II of the CCE continued. P.L. 480 counter part funds were set aside by Tanzanian Government for design, quantity survey and construction; Funds committed through Mission, University and KILIMO cooperation. Staff houses were finally completed in this period but electrical and water service were not provided. REDSO engineer (Brahmpat) visited the site with Project Officer Harvey. USU consultants brought some audiovisual supplies with them to Morogoro.

Problems. Delays in receiving audiovisual equipment and supplies and stationwagon continued. Also the delay in completion of the houses was a frustration. Further, the promised Telex machine was not installed. Brain's absence after July was also felt in managing the project while understaffed. Time required to fund short courses often protracted

requiring time, travel and personal attention. A final problem area was the complications resulting from underestimating the funding for Phase II of CCEA construction.

October 1981 - March 1982

Barton Sensenig was appointed in November by USDM to fill the Rural Sociologist position. He and Trina Laya-Sensenig arrived in December.

Meetings. A CCEA Phase II planning meeting was held with the University, KILIMO, and Ministry of Works represented. Informal contacts were made with USAID project contractors assisting Tanzania Rural Development Bank to consider possible training courses to be offered after needs assessment completed. USAID Assistant Administrator for Africa visited Faculty and Project. The Sensenigs traveled to Tanga to make contacts with Tanga Integrated Rural Development Project. The Sensenigs and Giltrow visited Ilonga Research Institute and Kilosa District for discussions on maize extension packages. Staff made village visits for orientation purposes in connection with Village Development Project and Farming Systems Research Project of the Faculty. The Sensenigs visited the Training for Rural Development project-supported Rural Development Training Centre in Iringa to identify possible collaboration topics with CCE. The Tanzania Council for Agricultural Education met in Arusha; the DAEE was represented by four people; Giltrow presented his own paper and one written by Sensenig on CCEA activities.

Consultants. Dr. Trina Laya-Sensenig's appointment as consultant on Women in Development food related issues was cleared by UDSM in March. Finalization awaiting USAID/Washington approval.

DAEE Teaching. End of year examinations dominated DAEE activities in November. In January the DAEE received three Third Year Option students (out of a pool of 31 Agricultural Division students). Also, AEE 307 Rural Sociology was taught to 10 DAEE and Rural Economy option students (Sensenig); AEE 205 Agricultural Communication was taught to 69 Second Year Agricultural Division students (Giltrow) and AEE 105 Rural Sociology offered to 72 First Year students (Sensenig).

Short Courses. The first CCEA residential short course on Agromechanization began in November with 19 participants from Tanzania mainland and Zanzibar. This marked the first use of the Hostel (remaining two Centre buildings were not completed at the time). This short course was six weeks long and self-funded except for the special two-week field visit period. The Department of Agricultural Engineering and Land Use Planning was also involved.

The second CCEA short course on Agricultural Workshop Practices and Mechanization for Secondary School Teachers began in December with 22 teachers and a Ministry of National Education official attending for four weeks.

In March a third CCEA short course began. All 12 participants were managers of large state-owned farms run by NAFCO (National Agriculture and Food Corporation). The first week was devoted to technical subjects

in collaboration with the Department of Agricultural Engineering; the second week was on administrative topics in collaboration with the neighboring Institute of Development Management (IDM), Mzumbe.

The Audio-visual Unit supplied equipment and a technician for an FAO-sponsored short course held at the National Seed Testing Laboratory. The delay in the completion of the CCE means such courses were held in non-purpose built facilities.

Conferences/Papers. Giltrow participated in World Food Day as the Faculty's representative to the event. He was active on the National Coordination Committee and he planned and organized a display about the Faculty's role in food production. At the World Food Day celebration the Prime Minister announced a policy change in extension service along the lines of DAEE background paper of June, 1981.

Brewer planned and did fund raising for nutrition conference and follow-up workshops for 1982 in collaboration with the Department of Food Science and Technology and Tanzania Food and Nutrition Centre. Sensenig participated in a week-long IDRC-sponsored Farming Systems Research Workshop with international representation, held at the Faculty.

In meetings at Arusha and elsewhere with Farming Training and Production Project and KILIMO staff, extension/training modules were developed by staff.

Sensenig began preparation of a comprehensive bibliography of 500 training and extension modules as resource a for future module production. The Sensenigs visited Uyole Agricultural Centre and Uyole MATI to discuss extension packages and training modules; they also made a second visit to the Rural Development Training Centre at Iringa for discussions on possible specific courses in rural survey topics. The Cowpea Extension/Training Module arrived in pilot form from USU. Testing was scheduled for mid-April with extension officers from Morogoro in a five-day workshop supported by module sponsors, Agricultural Research Project (USAID) based at Ilonga Research Institute.

Equipment/Building. The first shipment of audio-visual equipment arrived in February and a second in March. Most pieces were put into storage due to the non-completion of CCE buildings. Phase II planning for the CCE continued with a site visit by architects and presentation of preliminary sketches and estimated costs. Two of the three USAID-sponsored houses were occupied in December and the third in January. Part of the furniture for these houses was delivered.

Problems. Once continuing problem was the difficulty for Giltrow as both Chief of Party and audiovisual specialist to schedule in-service training. He simply had too many administrative responsibilities to adequately handle both roles. Transport also continued to be a problem as the Mission still had not provided the promised station wagon. Although some audiovisual commodities did finally arrive in this period, there were a number of uncoordinated accessories. Finally, the Brewer family went on leave in December and due to medical problems were delayed a month in their return.

April 1982 - September 1982

During this period planning documents were forwarded to the University of Dar es Salaam Governing Council to convert the Morogoro campus to a self-governing University. Dr. Keregero was appointed as Head of DAEE and Acting Centre Director. Dr. Moris was replaced as Campus Coordinator at USU by Dr. Mark Lusk, effective October 1, 1982.

Meetings. The DAEE staff met with the Kilimo curriculum development specialist and two representative from the Polytechnic, Woldverhampton, UK, to make plans to hold a three month course in teaching methods for MATI tutors. Giltrow to serve as coordinator. Dr Keregoro and J. Gonsalves (Research Associate) were DAEE participants in Farmer Training and Production Project's National Advisory Committee in Mtwara. Guidelines were developed for extension module production.

Consulting. In June Dr. Trina Laya-Sensenig began her consultancy to prepare CCE plans and course materials emphasizing the role of women in food production.

Teaching. Sensenig organized a successful extension practical for second year agriculture students as part of Musoma Resolution guidelines for practical work in addition to theoretical studies. He taught a graduate course in research methods (C1) and a third year option course in Educational Evaluation. He also helped team teach an extension course. Giltrow taught an option course in audio-visual methods. Three draft extension modules were created from this. The third year agriculture extension common course (AEE 301) was team taught with Sensenig coordinating mini-Project practicals and Brewer lecturing during part of theory lectures.

Short-courses. Three short courses were offered in this period. The first was a one week workshop for village extensionists on cowpea production. The Pilot Cowpea Training Module was developed by USU Instructional Development Division with Kilimo and Agriculture Research Project. Several major revisions were made following testing the module in the workshop. A two week workshop was conducted for NAFCO (state) farm managers emphasizing mechanization and accounting. The Agriculture Engineering Department and Institute for Development Management cooperated in this endeavor. A two week seminar for MATI extension tutors was sponsored by Kilimo providing participants with updated curriculum in extension and rural economy. Sensenig and Laya-Sensenig gave workshops and consulted in aspects of village surveys and data processing at the Training for Rural Development Centre in Iringa.

Conferences/Papers. The DAEE staff, including Sensenig, participated in a week long extension officers seminar at Uyole Agricultural Research Centre, Mbeya. Third year option students also traveled with the group; tours of significant agricultural areas and activities in the southern part of the country were included. Giltrow visited Rome to complete arrangements for the CCEA to prepare five chapters, case studies and teaching materials, for an FAO-sponsored Forestry Extension Reference Manual. Sensenig participated in drafting a successful funding

proposal for expanded horticultural research and extension activities. The French government to provide initial year's grant of $352,000.

Training of Tanzanians. Audiovisual Unit photographer K.J.G. Mwanga was sent to Mwanga for a three month course in Rural Communications at the Nyegezi Social Training Centre using funds generated by Centre activities. M. Mlambiti returned from six months of special studies at West Virginia University under Project auspices. He did the data processing and analysis for his Ph.D. dissertation. A. Z. Mattee completed his dissertation research in agricultural secondary schools in Tanzania and returned to the U.S. to complete his Ph.D. V. Rutachokozibwa and I. J. Lupanaga also departed for the USA to begin their Ph.D. studies. Sponsorship shifted from this project to Training for Rural Development.

Equipment/Building. The telex machine finally became a reality in May, greatly easing communication with Logan. In addition, a major audiovisual commodities shipment finally arrived; including 90 boxes of production and utilization equipment. Furniture and furnishings money was provided by Kilimo for the CCEA and DAEE buildings. The first shipment arrived in September. The CCEA Hostel became more fully used by by August with an arrangement to serve as an overflow for Faculty Guest Wing. In September, with assurances that glass will eventually be supplied, the faculty took over the CCE and DAEE building complex and the staff members moved into the new buildings.

Problems. Certainly over the life of the project the task of completing the CCEA/DAEE physical facilities took time and energy and was a distraction from the program planning thrust. Another problem in this period, as before, was the absence of a full time Centre Director. This precluded the Centre from running in a totally smooth fashion. The fourth vehicle was still not obtained in this period. During this period the staff began to feel the strain of the absence of the Tanzanians, who due to earlier training decisions (upgrading from M.Sc. to Ph.D. status), were in the USA longer than initially anticipated. This obviously led to more teaching for the expatriates in the last year of the project than originally expected.

October 1982 - March 1983

Drs. Hess and Wesselmann conducted an external evaluation of the project in October and November. Project Assistance Completion Date (PACD) to February 28, 1984 was approved by the University and the mission.

Campus Visitors. U.S. Ambassador David Miller and Mrs. Miller (accompanied by USAID Agricultural Division officers) visited the Faculty on two occasions regarding the May seminar on Resource Efficient Farming Methods (especially composting). During the second visit, Rodale Research Institute Director Richard Harwood met with Faculty, KILIMO, TARO and USAID staff on detailed planning of seminar. USU Campus Coordinator, Mark Lusk and Sociology Department Chair, Pamela Riley visited the project and mission in December. Discussion centered on evaluation results and final year's activities. Barry Klein,

USAID/Washington Regional Desk Officer, visited in February. Klein was involved in the planning of the Project and had brought the project paper to the Faculty in 1978.

Consulting. Dr. Laya-Sensenig planned training for improved fuelwood supply and more efficient cooking stoves after field studies and interviews. She also participated in DAEE field practicals and extension-related short courses.

British Council supported consultant, Geoffrey Wilkinson, spent eight days assisting in drawing up detailed schedule and plans for three month long course for June-August. British Council Deputy Representative, Andrew Moore, visited DAEE/CCE for discussion on support of additional consultants from Wolverhampton Polytechnic. Training for Rural Development microcomputer consultant, Noel Berge, met with Sensenig and Giltrow about the scope of microcomputer usage and possible hardware and software for Tanzanian conditions.

Teaching. Third year DAEE option students successfully completed their coursework. One was assigned to agricultural bias secondary school; one to a MATI and the third option student appointed administrative officer for CCE and took on many responsibilities assumed earlier by the Deputy Director. Seven new students selected the DAEE option. Many meetings were held on DAEE Curriculum reform during this period.

Giltrow taught part of AEE 205, Agricultural Communication and team taught AEE 313, AV Methods with Madalla. The new third year Agriculture students (65) took a common extension course: This was the largest group ever, making practical training difficult. Weber, Mollel, Sensenig, Brewer, and Keregero team taught the course. Sensenig taught third year rural sociology course for DAEE and Rural Economy Department students and educational methods courses.

Short Courses. A five week Forestry Research Methods short course was held as the first major activity in the new CCE building in cooperation with Forestry Division and Canadian IDRC. There were 20 participants from eight countries. A two week course for Regional Livestock Development Officers was sponsored by the Ministry of Livestock Development and emphasized extension methods (in cooperation with the Veterinary Science Division and Animal Science Department). Participation from USAID Farmer Training and Training for Rural Development Projects. A one week Coconut Development course organized with National Coconut Development Programme was conducted. 20 DADO-level participants were trained in coconut production basics by Faculty and NCDP. A two week Cotton Extension course was held in cooperation with the Cotton Authority, twenty participated.

Conferences/Papers. The Faculty was represented at the World Food Day Exhibition in Dar es Salaam, using a slide-tape presentation on student extension practicals plus other exhibits prepared with the assistance of the Audiovisual Unit. Staff attended a study seminar on Zanzibar.

Sensenig continued to analyze data for study of impact and attitudes toward Musoma Resolution for Faculty Board Consideration. Work continued on Extension teaching packages, on traction, improved cookstoves, farming systems research, horticulture reference, pesticide safety, how to teach, research report writing, cultural factors in extension.

Training of Tanzanians. Mr. A. Madalla returned in January from 2½ years study at USU with an Educational Specialist degree in Instructional Technology. Mr. N. Mollel joined the DAEE as tutorial assistant in January, having just completed a B.Sc. in Agriculture in Morogoro. He was the first T.A. appointed during the Project.

Centre for Continuing Education. Since the faculty opened in September, four short courses were conducted (with 82 participants), reflecting forestry, livestock, and agriculture issues. This speaks well for the Faculty's ability to serve a wide constituency. These courses were all initiated by the sponsors. Financial sponsorship of the courses ranged from international donors to completely local funds. A capable, experienced administrative officer, Mr. B. L. M. Bakobi, was added to the staff. Mr. Bakobi had been a third year option student in the DAEE, and had previous teaching experience. Virtually all furniture for the Centre and DAEE offices arrived; it is attractive and reasonably durable (crafted from local timber). Telephones were installed, most operating satisfactorily.

At this point, the CCE facilities were booked for courses for 22 of the 26 weeks in the next reporting period. This is an 85% occupancy rate. The hostel was also finally in use as the Faculty's Guest Wing overflow, generating a modest revenue at times when courses were not being held. More importantly, people were served who would not otherwise be accommodated on the campus. Approximately 1.2 million shillings ($130,000) were generated in gross revenue from course sponsorship over the past year and a half. This suggests the likelihood that the Centre will be self-sustaining if aggressive measures are taken to organize courses.

Disappointments also occurred during this period. These are particularly focused on the construction problems of Phase I and the time lag between Phase I and completion of Phase II. Problems included: (1) CCE course participants complaints about the lack of a lounge and recreational facilities. These items are included in Phase II. (2) Water leakage from the roofs of all buildings was severe during December's monthly accumulation of 10 inches of rainfall. The contractor and KILIMO continued to negotiate but the contractor refused to come to Morogoro to complete work and to clear up past mistakes. (3) There was still no glass for the buildings, in spite of various attempts to secure it. (4) There were few applicants for the various CCEA and DAEE posts. Of particular concern was the position of CCEA Director.

Extension Teaching Packages. The previous year and a half of the project witnessed an emphasis on the production of specific products. In this vein, parallel efforts were made with the Farmer Training and Production Project. Over the last year many meetings took place between

the two projects. Nonetheless such efforts have been very difficult. The bottleneck experienced by project staff was promoted by the fact that staff time which could be devoted to intensive research, writing, editing, and illustration was scarce. In developing the Forestry Extension Manual, for instance, Giltrow had to retreat on two occasions from Morogoro to find the concentrated block of individual time for writing. Because of the shortage of staff in the DAEE, the CCEA, and the audiovisual Unit, short term objectives had to take precedence over long term package production. Planning had been for Sensenig to have relief from teaching duties in September-November, when Moris was to have been here. When Moris didn't come Sensenig took on an unexpected extra course, grading of extra end of year exams, plus linkage assignments with Training for Rural Development. Giltrow was similarly burdened with three months of unanticipated additional administrative load as acting head of DAEE. The later-than-expected return of his counterpart mean adding teaching duties as well in the January-February period. Brewer was handicapped by not having staff assistance in upper level administrative responsibilities until the appointment of Mr. Bakobi as administrative officer in late December. He also had teaching duties during the past and present reporting period.

April - December, 1983

This period was the last nine months of the project. Pamela Riley became the project coordinator in Logan in August and in that capacity assisted in the final ordering and otherwise coordinating the project. C. Brewer left Morogoro for the U.S. in September. USAID Director Art Handly, Project Officer Ron Harvey, and the Giltrows departed in December. The Sensenigs remained until mid-January to complete details.

Meetings. In April the Minister of Agriculture visited the faculty to review and explain Tanzania's new agricultural policy, training of extensionists is a key element of the anticipated changes. In May Kenya's USAID Agricultural Development Officer, David Lunberg, visited the CCE and DAEE with 5 Kenyan agriculture and livestock officers. The CCE was visited by USIS Information Officer and Information Specialist with journalists from Uhuru, Daily News, and Tanzania New Agency (Shihata). Photographs and information were supplied for study on CCE operation. A half page feature story on the CCE appeared in May (see Annex _____). Two of Giltrow's co-authors of the Forestry Extension Reference Manual (FAO) met with him in Morogoro to refine drafts and plan completion. Publication expected in 1983. The Sensenigs and Giltrow attended a meeting with Farmer Training and Production project staff, MIFUGO, and KILIMO Staff to review training package production. Jon Moris informally reviewed project activity while in Tanzania on other USAID consultancy in September. The Sensenigs and Giltrow made a site visit to Gairo in October in preparation for Agroforestry and Woodstove Workshop later in month. Two Rodale Research Institute consultants visited the Faculty in November to follow up on the compost workshop. Larry Abel (USAID/Washington) visited the project in December. He was a major drafter of project paper and initial planning.

Consulting. T. Laya-Sensenig prepared various test versions of improved cookstoves. Her testing began with women in Pangawe village in July. In August the Sensenigs visited the Arusha area for document

collection and survey of cookstove production efforts. In October and November a variety of groups visited Laya-Sensenig's woodstove experiments on campus and in villages. In December she reported on her project-supported work on wood fuel utilization at the Nairobi meeting of the Renewable Energy and Environmental Conservation Association.

Short Courses. In April a CCE/NAFCO short course on large farm management and field operations was conducted. In May a National Coconut Development Project extension training course was offered at the CCE. This was the second cycling of the course to train extensionists in coconut production. Also in May, Faculty hosted 320 participants to 5 day workshop on Resource Efficient Farming Methods. The workshop was opened by President Nyerere; the CCE provided extensive support. Project funds supported four consultants from Rodale Press, Inc. In June a MATI tutors course began; this was a 12 week intensive course in teaching methodology for 12 MATI tutors (including two principals). Sensenig and Giltrow were directly involved in teaching. In October Peace Corps training in grain storage was conducted at the CCE. This was the first group of non-Tanzanians to use CCE facilities. Sensenig taught extension.

Papers. In July a preliminary version of Biointensive Food Production Manual, written by J. Gonsalves, was distributed. The final version will incorporate recommendations on compost making in line with the May seminar. In August Giltrow collected data in Kenya as a case study for his Forestry Extension Manual (425 pages) which was completed and sent to FAO in November. Giltrow completed the editing of a technical report writing manual written by Dr. M. Seenappa as the result of an earlier CCE course. A project bibliography was drafted in November and December; 75 entries were generated over four year period (see "output section").

Final drafts of teaching packages on "Citrus Production", "Fuelwood Use/Improved Stoves", "Field Beans", and "Psychological, Social and Cultural Factors in Extension" were prepared by T. Laya-Sensenig and B. Sensenig. B. Sensenig presented a paper, "The Most Important Animal on the Farm", to the Tanzanian Veterinary Association Scientific Meetings, Morogoro in December.

Audiovisual Unit. The Unit organized a World Food Day exhibit in Dar es Salaam; Giltrow served as judge. An AV equipment inventory revealed the loss of a number of audio-related items. Increased vigilance and security undertaken. Slides were taken and processed locally for insertion into the cow pea training package. Ninety first year students were taught basic AV methods in a week long mini-course in July.

Training of Tanzanians. Mvena arrived in Morogoro in May for his Ph.D. research. H. O. Dihenga returned to Morogoro in August for his Ph.D. research. A. Z. Mattee returned to his teaching duties with the DAEE in June after successfully completing his Ph.D. in Agricultural Education at University of Wisconsin. He was supported by project. Then in September, E. E. Maeda returned after successfully completing his Ph.D. at USU in Food Science. Mr. Mvena is expected to return to Morogoro to rejoin the DAEE in May, 1984. Messrs. Rutackokozibwa and

Lupanga should be back in 1984 to conduct their Ph.D. research, returning for good in 1985.

Equipment/Construction. The final project vehicle, a Peugeot 504 station wagon, was finally delivered in June. The Landrover tires requested of USAID in February were finally received in December. Some 800 book and other publication titles were sent to Logan for purchasing by the Project, as compiled by B. Sensenig. Approval for extensive commodity purchasing was received. Lists were drawn up for purchase prior to Dec. 31st contract expiration. Phase II planning of CCE continued but the decision on a contractor was held up by the inability of all parties to meet.

Additional activity information can be found in Annex D which provides end-of-tour reports from Giltrow, Sensenig and Laya-Sensenig.

PROBLEMS/RECOMMENDATIONS

Obstacles

It appears the Project guidelines were overly ambitious and unrealistic to expect them to be accomplished in a four-year period. As noted by Hess and Wesselmann, in their evaluation of the Project in October and November of 1982,

> Although the Goal was valid, the Measures of Goal Achievement and Assumptions were not valid. It is not possible for a project of four years' duration, establishing a BSc program in Agriculture Education and Extension, and a Center for Continuing Education in Agriculture, to realize the national level of achievement and impact envisioned. The best the project could do was to provide training on how to attack the achievement tasks. Accomplishing them is a longer-term function of the Ministry of Agriculture and other related institutions. Similarly, it was overly optimistic to assume that an effective extension service would be established from a poorly functioning extension service in four years' time from only the limited project inputs.

Nonetheless the Project also had many successes and made a number of accomplishments given the various problems that arose during the life of the project. This section attempts to summarize some of these issues; the comments are primarily drawn from reports submitted by the evaluators and USU staff.

USAID. As a result of USAID's precontract revisions many problems resulted. The most problematic was USAID's decision to assume responsibility for the ordering of project commodities and selection of the first group of participants for U.S. training. USU objected to no avail. Among the negative outcomes was the prolonged period without vehicles. No vehicles arrived until the second year of project implementation and the fourth and final vehicle requested in January 1980, did not arrive in Morogoro until June of 1983. This delay made life very difficult and inconvenient for the USU staff and certainly delayed much of the planned fieldwork where 4-wheel drive vehicles were necessary. Another unreasonably long delay was in equipping the AV Unit. Commodities did not arrive until well into the third year of the Project and when they did arrive there was incomplete delivery of the requested items, incorrect orders, unusable equipment and substantial cost overruns. That is USAID's compliance with the specifications given was simply unsatisfactory. This delayed the provision of teaching aids and on-the-job training of AV technicians until the final year of the project.

Another concern focused on the change in USAID expectations over the life of the Project regarding production of training packages with lesson plans on improved agricultural practices. Initially this was a fairly minor facet of the project but became a focal point during a review of the Farmer Training and Production Project. Thus, the emphasis was changed from a training focus to a focus on modules.

A request was made by Dean Kyomo (FAF), and denied by USAID, to extend the project by two years and later to extend by only one year (also denied). The COP and the Contractor also requested an extension of at least six months (see letters in Annex E). It is unfortunate USAID was only willing to give a three month extension given that plenty of money remained in the project coffers at termination. The argument for an extension was to allow the attainment of several important project objectives: "(1) the full development of the Audio Visual Center, (2) the revision, consolidation, and reduction of the DAEE Curriculum, (3) the production of additional reports, teaching manuals, documents, and extension materials, and (4) an effective transition of roles to Tanzanian counterparts," (excerpt from letter from Giltrow (COP) and Lusk (USU Campus Coordinator) to Lyvers (USAID mission).

Unfortunately a lot of equipment arrived (and is now arriving) in Morogoro at the conclusion of the Project, including office supplies, printing and audiovisual materials, a complete microcomputer system, numerous library books, equipment for the CCEA vehicle spare parts and field extension equipment (see list in Annex F). The objective of a smooth transition to Tanzanian counterparts resulted from the fact that because of the change in some Tanzanian Participants from MSc status to PhD status resulted in a delay in the return of these people. Hence, in-service training was not possible for many participants. This was particularly problematic in the A.V. Unit where the counterpart was abroad throughout the AV specialist's tenure.

A final dissatisfaction with USAID and FAF focused on the delay in the completion of housing for project staff. This caused some inconvenience and frustration.

Tanzanian Government. While the TanGov provided participants for training they failed to provide local staff counterparts or aides for the Project which resulted in much loss of time for the USU staff. Several positions were simply never filled.

The other major TanGov problem was with the delays in the construction of the CCEA buildings and office furniture. Although building construction was not an objective of the project, except for securing funds for Phase II and furnishing Phase I, shortages of building materials and lack of capable supervision resulted in time that had to be devoted to construction concerns if satisfactory physical facilities in which to implement project objectives were to be achieved. As the COP reported in his End of Tour Report (Annex D),

> We feel this time was well spent to avoid more serious problems than already existed with the three staff houses and three CCE buildings which were built. But it was a waste of our time in the sense that the construction company should have been responsible to do good work. The hours and days spent tending to details have proven of value. For instance, all three houses have a steady supply of water as the result of refusing to accept a plan which would have meant virtually no water for one house and intermittent water for the other two. The hostel rooms and offices have ceiling fans, which were not part of the

> original designs and were on the verge of being omitted. We were defeated in getting glass for the CCE, and the rainwater pours into the offices through leaky roofs, but the film viewing and darkrooms have electric outlets which were omitted during design and almost left out during construction. We have a door separating the audiovisual unit from the main CCE facility to assist in sound isolation and security, an addition at the last minute when it was apparent none was specified. The houses have adequate electrical outlets in each room because we brought them into the country on returning from leave.

It is of interest to note the CCEA still has leaky roofs and no glass in the windows!

Contractor. The major problem with regard to USU, the contractor, was the dilemma of communicating from such a distance. Without a telephone the staff in Morogoro had to rely on taking telegrams into town until a Telex machine was finally installed in May of 1982. Further, the contractor's decision to upgrade the Tanzanian participants from MSc status to PhD level had ramifications for the lack of continuity between expatriates and their counterparts, as discussed above. Of course this problem could have been remedied with the requested extension

Role Conflict. This lack of counterparts overloaded the USU staff and created frustrations in their planning as well as very heavy teaching loads. The role conflict for the USU staff centered on the competing demands of administration, teaching, curriculum development, short course organization and fund raising, production of teaching materials, helping to run the institution and tracking construction and other delays. Giltrow particularly felt overwhelmed with his multiple role as AV specialist, Deputy DAEE Director and COP (a role he did not originally bargain for). With the expansion of the CCEA activities the staff found themselves heavily involved in short courses, seminars and workshops. Understaffing was felt not only because of unfilled position vacancies and Tanzanians studying abroad but also due to the illnesses of various members of the USU staff at different times (namely Moris--who was forced to return to the U.S. because of illness, Brain, the Brewers and Laya-Sensenig). In addressing the strain he felt due to the variety of pressures upon him, the COP states in his End of Tour Report:

> One final note on an issue which has woven its way through this report--the question of teaching package production. It was not until late in the project that I realized the source of my anxiety about both the project paper's reference to teaching packages and the drumbeat on the topic from Logan and Dar es Salaam. It was simply that in trying to produce teaching packages for MATIs, extension, and secondary schools, we would ignore our primary clients on campus, particularly the CCE courses. Campus clients were our primary target audience and not the others, who have other institutions and projects to provide materials for them. In the end, we weren't able to produce the full-blown teaching packages envisaged for us. But we did continue to serve our primary clients reasonably well given the delay in providing supplies.

DAEE. As previously mentioned, from the perspective of the University of Dar es Salaam the major objective was the teaching of DAEE courses while the Tanzanian staff were in the U.S. The curriculum required a very heavy load for both students and staff as course requirements were/are roughly double those of the Department of Rural Economy and some of the other departments. This fact is also one of the obstacles to recruiting students to the DAEE option. The DAEE was founded with an agreement with the Ministry of Education that all graduates would be hired as secondary education teachers of agriculture. When the option was first offered students were reluctant to sign up. Brain's survey indicated this was because people wanted to work for the Ministry of Agriculture and not for MinEd. Curriculum revisions are obviously needed; however, the Dept. Head, Keregero did not want the Americans to make them. He preferred to wait for the Tanzanians to return. In 1979-80 and 1980-81 no students elected the third-year option, in 1981-82 there were 3; in 1982-83 there were 7 and in 1983-84 only 2 singed up so it is currently not being offered. This most recent reduction is largely the result of an unfortunate incident that occurred when the DAEE option students were not taught a segment of a course by the Rural Economy Department but were tested on that section during the end-of-year examination. This forced them to remain behind to make up the coursework and the examination and postponed their graduation. Obviously, this was very bad for public relations and surely discouraged potential students from electing the DAEE option. This incident combined with an inordinate number of class hours, heavy emphasis on teacher training rather than extension and much repetition in subject matter in course work is discouraging to students considering the option. Further, with only 69 students in their third year and nine options to choose from, any department can only expected about 7.6 students.

CCEA. In the Project Paper's discussion of implementation it was pointed out that "a major problem with the Project phasing will arise if the CCEA facilities are not completed early in the life of the Project, since these facilities will house both the DAEE and the Center, and also the audio-visual services unit for the FAF." This was an astute observation, and in fact the delays in construction created one of the major obstacles to a smooth-running project--delays that were out of the hands of the hard-working staff. Phase II of CCEA construction was not underway before the USU staff left the country. The kitchen, laundry, dining room and lounge are vitally needed to make the CCEA independent. The additional hostel rooms and other rooms are also very important to expansion and flexibility of operation. It will probably be several years before this is accomplished. Currently, then, the CCEA is deficient in providing services for participants such as food, recreation and transportation.

Another problem was the recruitment of a fulltime Director for the CCEA. Attempts to find someone were fruitless. Nonetheless it is much too demanding for the Head of the DAEE to have the added burden of serving as Acting Director of the CCEA which has resulted in the CCEA not being well managed. The fact that the units are not operating separately is certainly a concern because it weakens the DAEE. The option students complained that heavy CCEA involvement detracted from their needs.

Transportation. Transportation problems provided a recurrent complaint. The problem was not only with the delays in obtaining vehicles but problems with scheduling. The project staff found it difficult to gain access to the two USAID Landrovers allocated to the DAEE and CCEA. Furthermore, gas shortages were a perpetual problem.

Recommendations

The following suggestions are also drawn from various reports submitted by the USU staff.

DAEE. An obvious recommendation is that the Curriculum needs to be revised if the DAEE is to ever attract significant numbers of option students. The number of required courses should be reduced to a more reasonable level (about half the hours now required) and the focus shifted from being entirely education to a greater emphasis on extension as few of the students want to teach in MATI's but many are interested in extension work. Roughly half of the courses should be related to agricultural extension. The option should not be recombined with Rural Economy.

Field practicals should continue to be developed. Semi-permanent relationships with selected nearby villages are important as well as regularly scheduled (monthly) visits to those villages. Funding should be sought for larger village projects. These relationships with neighboring villages are important in training students.

Departmental administration has also been problematic. It is recommended that Department Heads be trained in both administration and management. Autocratic approaches should be avoided to improve departmental administration; frequent staff meetings are suggested to allow input. Of utmost importance is the separation of the CCEA from the DAEE.

CCEA. In addition to separating the DAEE from the CCEA, it is also important to hire a professional administrator to serve as Director of the CCEA. To become more professional the CCEA also need a skilled programmer to organize and review course topics, edit materials and monitor reproduction of materials. Management training would be useful to the CCEA personnel to facilitate the smooth running of the operation. The management should also seek out institutions in the agricultural sector requiring assistance rather than simply responding to requests as they arise.

Another suggestion is the significance of editing, simplifying and field testing training packages produced by the Center. Once tested they should be revised accordingly. To really be useful to receivers, all materials produced through the CCEA should be simplified so as not to be too technical for the intended audience.

A final recommendation is that the CCEA encourage village visits and field practicals in short courses. It is expected that the CCEA should do very well inspite of some of these problems because there is a terrific demand for such services and virtually no competition.

Audiovisual Unit. It is recommended that the supplies and equipment contributed to the AV Unit be rationed so they might last for many years. Tight security is also important.

Transportation. A clear policy for scheduling vehicles is needed by both units. Laya-Sensenig's End of Tour Report (Annex D) contends:

> Vehicles are always a bone of contention. At least one, the CCE vehicle, should be dedicated to the Centre, for all the arrangements and running around that have to be done before and during courses. The driver should also be on standby. Time and again field trips are one to three hours late because of vehicle, driver, petrol, or pack lunch problems which were to a great extent forseeable and avoidable.

and B. Sensenig's Report states:

> Several recommendations are in order. First, there should be a transportation officer in the DAEE as in other Departments. Second, there should be a clear policy for scheduling, giving priority to official use over private use of the vehicles. Third, there should be open-book scheduling and coordination to avoid duplication of trips to Dar Es Salaam etc. And, there should be careful controls over drivers to eliminate use of the cars for personal gain. For USAID, it is recommended that the vehicles be supplied with recording speedometers to ease controlling drivers. Also, a variety of vehicles (small cars, motorcycles, trailers) should be supplied for different uses. Most travel was to Morogoro or Dar Es Salaam where a more fuel-efficient car could have been used. If feasible, a project should include an extra car to cover the inevitable call for an "ambulance."

OUTPUTS/INPUTS

Logical Framework

The Table on the pages that follow is the "Logical Framework" for the Project which was included in the original Project Paper.

Goal. The goal, "To help Tanzania develop its own capability to adapt and communicate agricultural research results and technology to the village level" was addressed throughout the term of the Project. The establishment of the CCEA, DAEE and the AV Unit were all steps in this direction. These units are geared toward producing information for villagers and others and disseminating that information at the village and other levels. Another measure of this goal is village level contact by extension personnel and agricultural service institutions. The USU team paid extensive visits to villages both near Morogoro and in other areas. Many of the training packages were utilized and thus, tested, with villagers. The delay in getting the vehicles did, however, hinder the degree to which this goal could be met. Obviously the third measure of goal achievement, increased farmer adoption of improved technology cannot be measured. The overall goal is problematic for this project because it was simply geared to provide training for extension and not responsible for a national extension effort. It should be noted that extension in Tanzania is being moved from the Prime Minister's Office to MinAg; this should improve the bureaucratic structure.

Purpose. The project purpose was "to strengthen the linkage between the University and villages by developing the University's capacity to train and retrain middle and upper level agricultural manpower in agricultural teaching, extension, management, and technical skills." As discussed previously, the assumption that the TanGov would complete construction on a timely basis was not correct. In fact the physical facilities are still incomplete. Nonetheless, one verifiable indicator, the establishment of a self-sustaining DAEE, fully staffed by Tanzanians and offering the BSc in agricultural education and extension is now a reality. The second verifiable indicator, the establishment of a self-sustaining CCEA, fully staffed by Tanzanians, and capable of offering in-service retraining for agricultural teachers and managers is also a reality. However, the CCEA remains to be fully separated from the DAEE or to have a full-time Director. Unfortunately, too much time on the part of the USU staff went into construction matters associated with the CCEA.

Outputs

Table 2 is a synopsis of proposed and actual outputs accomplished by Project completion date. For a more informative elaboration the reader is referred to Annex G for a Project Bibliography, a list of courses offered through the CCEA during the life of the project, a list of training packages developed and an accounting of recent AV Unit activities. It should be noted that some of the items in the Project Bibliography are in draft form rather than final form due to the termination of the project. An extension would have seen these to their conclusion. Thus, the belated emphasis by USAID on teaching packages did result in some 18 teaching modules but only 7 in final form. The remainder continue to be edited and field tested.

TABLE 1

Logical Framework

GOAL	Measures of Goal Achievement	Means of Verification	Assumptions
To help Tanzania develop its own capability to adapt and communicate agricultural research results and technology to the village level.	(1) Within TanGov. Agric. service institutions, an improved knowledge of village level agricultural conditions and problems.	(1) Analysis of curriculum, research, and field studies done by TanGov agricultural service institutions.	Tangov continues to emphasize relevant village level agricultural development and provides adequate financial and human resources to support it.
	(2) More effective village level contact by extension personnel and agricultural service institutions, i.e., increased number of extension visits, more demonstration plots, more courses given, etc.	(2) Kilimo and Parastatal records on extension work.	An effective extension service is established.
	(3) Increased farmer adoption of improved technology, i.e. increased tonnages of improved seed and fertilizer, increased farm implements sales, etc.	(3) Kilimo and Parastatal records of input sales and distribution	

PROJECT PURPOSE	Verifiable Indicators End of Project Status	Means of Verification	Assumptions
To strengthen the linkage between the University and villages by developing the University's capacity to train and retrain middle and upper level agricultural manpower in agricultural teaching, extension, management, and technical skills.	(1) A self-sustaining DAEE (fully staffed by Tanzanians) offering higher level (B.Sc.) training in Agricultural Extension.	(1) University of Dar-es-Salaam records, onsite inspections, contractor reports and expert evaluations.	TanGov will be able to provide necessary instruction facilities on a timely basis. TanGov will effectively coordinate inputs. TanGov projects/programs will effectively utilize Project-trained manpower.
	(2) A self-sustaining CCEA (fully staffed by Tanzanians) capable of offering relevant in-service retraining for agricultural instructors and managers.	(2) MATI and FTC records on-site inspections, and professional evaluation of: (a) Quality of teacher re-training. (b) Performance of MATI instructors. (c) Performance of others who have attended CCEA courses.	

OUTPUTS	Verifiable Indicators, Measures of Output Achieved	Means of Verification	Assumptions
1. DAEE	1. DAEE		
(a) Required courses developed for all FAF undergraduates in Agricultural Education and Agricultural Extension.	(a) Courses provided to all undergraduates consisting of: up to 30 lecture on principles of extension education; up to 50 lecture hours on the administration/supervision of programs of agricultural education and extension and; additional practicals in extension, agricultural education and agricultural projects.	University Course catalogue, course enrollment records, and teaching records. Professional evaluation.	TanGov and all donors will continue to coordinate their efforts, support and inputs.
(b) Curriculum developed for undergraduate majors in Agric. Education and Agricultural Extension.	(b) 25 Ag. Education and Extension B.Sc. graduates per year.		
(c) Relevant student research and adaption of agricultural technology for communication and diseminations to farmers.	(c) Twenty Student research and demonstration projects per year.		
2. CCEA	2. CCEA		
(a) Lesson plans developed for various short courses in agriculture.	(a) At least 10 short courses designed with at least 5 short courses presented to 100 students per year.		
(b) Short courses presented to Kilimo staff and parastatal managers.	(b) At least 3, 1-3 month specialized workshops, given each year.		
(c) Self-sustaining teaching materials/Audio-Visual capability developed.	(c) Relevant Audio-Visual and teaching materials developed for use in CCEA course instruction and for use by other FAF Departments, MATIs and extension services.		

INPUTS	Verifiable Indicators Implementation Targets	Means of Verification	Assumptions
1) AID Grant	1) AID Grant	a. AID Pro. Ag., PIO/T, University records, contractor records.	AID, TanGov., and Contractor will provide adequate resources and personnel in a timely and effective manner to implement the project as designed.
a. U.S. Technical Assistance Personnel	a. Technical Assistance Personnel		
(1) Department Head of DAEE	(1) 4.2 years		
(2) CCEA Director	(2) 3.5 years		
(3) Teaching materials, A/V Specialist	(3) 4.0 years		
(4) Short-Term Consultants	(4) 18 months		
b. Participants	b. Participants.	b. Participant Training records of Contractor.	
(1) Ph.D., U.S. academic training	(1) 6 Ph.D.'s produced		
(2) M.Sc., U.S. academic training	(2) 10 M.Sc.'s produced		
c. Commodities, Project Support	c. Commodities, Project Support		
(1) Audio visual and office equipment	(1) Audio visual Department in operation	c. Project and University equipment and inventory records.	
(2) Four 4-Wh. drive Landrovers.	(2) Landrovers in use during Project life.		
(3) 40-passenger bus	(3) Bus in use during Project life		
(4) CCEA Special Workshop/ Seminars	(4) At least 4 special seminars held		

Inputs	Verifiable Indicators Implementation Targets	Means of Verification	Assumptions
2. TanGov Contributions	2. TanGov Contributions		
a. Personnel	a. Personnel		
(1) DAEE staff	(1) DAEE; 5 professionals and 2 clerical.		
(2) CCEA staff	(2) CCEA; 3 professionals and 2 clerical.		
(3) Participant trainees	(3) Salary while in the U.S. for 16 Participant trainees.		
b. Commodities and Project Support	b. Commodities and Project Support		
(1) Vehicle repair and P.O.L.	(1) Vehicles, and equipment in use.		
(2) Misc. equipment supplies.			
c. Other Costs-Buildings	c. Other Costs-Buildings		
(1) DAEE Instruction facilities	(1) 325 m^2 constructed		
(2) Hostel	(2) 490 m^2 constructed		
(3) Conference Center	(3) 408 m^2 constructed		
(4) CCEA Instruction facilities	(4) 600 M^2 constructed		

Table 2

Proposed and Actual Outputs

Proposed Outputs	Actual Outputs Accomplished December 31, 1983
1) Courses provided to all FAF undergraduates consisting of:	
(a) up to 30 lecture hours on principles of extension education	74 hours
(b) up to 50 lecture hours on administration/supervision of programs of Agricultural Education and Extension	74 hours
(c) additional practicals in Extension/ Agricultural Education and agricultural projects	32 hours
2) Twenty-five Agriculture Education/Extension BSc graduates per year (DAEE)	1981-82 = 3 1982-83 = 7 1983-84 = 0
3) Twenty student research and demonstration projects per year	1982 = 7 1983 = 10 See Annex G for bibliography
4) At least 10 short courses designed with at least five short courses presented to 100 students per year (CCEA)	1981 = 1 (157 participants) 1982 = 5 (193 participants) 1983 = 20 (750 participants) See Annex G for list of CCEA courses offered and Annex H for examples of short course activities
5) At least three, 1-3 month specialized workshops given each year (CCEA)	1981 = 1 1982 = 1 1983 = 1
6) Relevant audio-visual and teaching materials developed for use in CCEA course instruction, and for use by other FAF departments, MATIS and extension services	18 teaching packages 7 in final form (see Bibliography and teaching packages listed in Annex G)
7) Fifteen participants trained	5 Ph.D.,[1] 1 EdS. 3 M.Sc., 3 short-term
8) DAEE curriculum course offering prepared and taught for undergraduate majors	Completed but needs revisions

[1]Originally 7 Ph.D. but 2 were transferred to Training for Rural Development as their studies would extend beyond the life of this Project.

9)	Agriculture Education/Extension curriculum/courses prepared for all FAF students and staff	74 hours beeing offered
10)	Establish MSc program in AEE	Planned for 1984
11)	Assist faculty to create an evaluative capability for assessing extension performance and service needs among small farmers and villagers	yes
12)	Provide academic leadership within the faculty to guide and support the development of the CCEA program	No CCEA Faculty assigned for training guidance
13)	Support relationship and institutional linkages established by project:[2]	
	(a) Faculty of Agriculture	Excellent
	(b) Ministry of Agriculture	Fair
	(c) Agriculture Extension Service	Poor
	(d) Agricultural Research Stations	Fair
	(e) Villages	Fair

[2]This is the rating per Hess and Wesselman, USAID evaluators, as of November 1, 1982.

The major outputs for this project include: (1) the establishment of the DAEE, run and staffed by Tanzanians; (2) 12 Tanzanians with advanced academic training in the U.S.; (3) the CCEA which is currently offering courses continually (2-3 now going on daily) and is capable of being self-sustaining and potentially of making a profit; (4) an Audiovisual Unit which is extremely well equipped (enough to support it for 5 or so years), and available as a free support service to the entire FAF; and (5) a number of teaching modules and other research reports. Of particular significance is Giltrow et al's Forestry Extension Reference Manual which is 425 pp. and now in draft form. It will be published by FAO/Rome. Also of major importance is Moris' book, Managing Induced Rural Development, 190 pp., published by Indiana University. This book is considered by some to be the definitive work to date (per published book reviews). Further, Moris' Resource Materials on Tanzanian Rural Development is the most comprehensive bibliography on the subject to date, 238 pages. Seven teaching packages stand out also. These include Gonsalves' "Guide to Small-Scale Biointensive Food Production;" Sensenig's field beans package and his guide on "Psychological, Social and Cultural Factors in Extension;" Eastmond's cowpea training package; Laya- Sensenig's citrus production and fuelwood training guides; and finally Smellie and Eastmond's "Module Outlines for Media Utilization, Production and Evaluation." Annex H provides samples of various pieces of written work produced during the Project.

Inputs

USAID inputs included technical assistance personnel, support for the training of the Tanzanian participants and provision of various commodities and project support (AV equipment, vehicles, etc). As previously indicated in detail, due to a variety of delays, these commitments were met in a less than satisfactory manner.

TanGov inputs included personnel, commodities, project support and building construction. As discussed in depth earlier in this report, the TanGov did not entirely fill their end of the contract. Delays in construction, not providing in-country personnel and so forth were very frustrating.

During the project, but particularly toward the end, USU ordered a number of things for the project including some $30,000 of components for Phase II (and some Phase I) construction of the CCEA including lighting, camping equipment, safe, fire fighting equipment, etc. Also, some $40,000 of audiovisual and teaching package production materials were ordered including photographic, duplication, offset, printing, overhead projectors and graphic arts materials. Another $20,000 or so was spent purchasing library and learning resources, including reference and textbooks, journal subscriptions, drafts, films, videocassettes, etc. In addition, some $12,000 was spent for microcomputers--both hardware and software and printers. USAID assumed responsibility for providing $12,000 worth of vehicle spare parts for the four project vehicles. Upon the departure of the USU staff the two vehicles reserved for the USU personnel as per the USAID Vehicle Agreement, Landrover TZ 53925 and Peugeot Station Wagon TZ 5702, was handed over to the Faculty for continuation of the project purposes. In addition, air conditioners, freezers, refrigerators, washing

machines, and dryers used by the USU personnel have been shifted to the CCE for strengthening the support services to CCE users. These will be particularly useful in furnishing facilities planned in Phase II. Annex F provides a listing and costs of goods provided in the most recent period.

SUMMARY AND CONCLUSIONS

To sum up the accomplishments of this project an extensive quote from the COP, David Giltrow, in his last Semi-Annual Report is useful.

"One of the lessons which USAID should have learned from this project is that great sums of money and many people are not required to produce results in a framework where well trodden, well defined paths exist. There was nothing exotic or particularly innovative about this project. It represented taking ideas which had clearly demonstrated their worth elsewhere in Tanzania and the world and putting them together. As a result, it was a comparatively inexpensive project which stands a good chance of achieving its goals within the year following termination, when most of the participants have returned. In effect, Tanzania has been a laboratory for new ideas for many years--for Tanzanian as well as donor agency planners. That so many have failed is unfortunate. That this modest project was able to do its job owes much to simple, persistent work by both the USU team and Tanzanians in the DAEE/CCE. Some of our USAID colleagues were spending as much in a week as we required in a year. Maybe that's the way foreign aid works. But I'm not sure it works well that way.

Things Done; Things Undone

What did we leave behind as the result of the four years at Morogoro?

1. A Continuing Education Centre equipped to handle some 30 courses, seminars, conferences, and meetings a year with an ability to be self-supporting and the potential to earn a profit of some 500,000/- per annum.

2. A Department of Agricultural Education and Extension (whose curriculum, unchanged despite our best efforts, remains cumbersome); run and staffed by Tanzanians (save for Dr. Weber, supplied under the GTZ of West Germany), most of whom were assisted in their education by this project. We hope that those several hundred students who were taught by the various USU professors will have been enriched by our relentless attempt to be applied, practical, and even controversial for the sake of their education and professional lives.

3. An Audiovisual Unit which is modestly "international class" to cater to the demands made by international courses, meetings, and personnel, yet which can also be simple enough to provide village workers with sound advice and materials. On a day-to-day basis, a good service to students and staff in their attempt to learn/teach better.

4. The promise of an expanded set of buildings in CCE Phase II so that the discomforts of the present structures can be relieved by more space and facilities, under the control of the CCE staff rather than others.

5. The promise of enough supplies and equipment to maintain a high standard for three to four years if not longer. This effectively extends the influence of the project in material terms well beyond the four years of the Project Agreement.

6. Three houses used by the USU team (two of which were supplied by USAID) and appliances to stock the dining room and laundry of the Phase II building.

7. The basis for some 18 teaching packages, seven of which are in final form awaiting production. The Project Bibliography will list the 75 entries produced mostly, or with some assistance, by the project.

8. Specific ideas and training course materials for a significant increase in the use of wood fuel for cooking in Tanzania.

9. Four vehicles which later in the year will have sufficient spare parts to keep them roadworthy for another four years if used with care and ingenuity.

10. A group of 12 Tanzanians who have had sufficient academic training in the USA to allow them to solve the difficult training problems of others in addition to advancing their own careers.

What didn't we do during the four years we were in Morogoro?

1. Provide enough leadership to make sure that each course and workshop at the CCE was well designed, well taught, and well evaluated. Some met these standards, most didn't.

2. Inculcate into the fabric of the CCE and the DAEE the necessary ingredients which would make for successful practical experiences in villages. The hidden agenda and resistance on this item was too strong to overcome in a few short years.

3. Demonstrate how the world of the personal computer could provide advantages in teaching package production, CCE course management and scheduling, remedial math and English, rural survey design and analysis, departmental library and record keeping.

4. Produce the kind and quality of teaching packages which should have been designed for our CCE courses rather than for others not our clients.

5. Conduct the kind of research which would allow us to learn more about the setting we were working in--the Faculty, the villages, the nation.

6. Establish the kind of rapport with the DAEE Head/Acting CCE Director which would have allowed frank and open exchanges leading to creative solutions of difficult problems.

7. Bring about the separation of the CCE from the DAEE.

8. Change the DAEE curriculum to a more streamlined, relevant set of courses which would attract students and satisfy the staff resource demands of both extension and teaching.

9. Provide sufficient in-service training to various staff members to make them more professional in their jobs (especially the Audiovisual Unit and allied technicians).

10. Play a more active role in improving the teaching and learning climate of the Faculty through offering workshops, seminars, and self-study units.

11. Provide the kind of public service contribution to the campus community (including films, forums, study visits) which we provided to the CCE course participants.

12. Provide the 400 m^2 of glass for the CCE and DAEE buildings."

The last annex, Annex L, includes photographs of the CCEA complex and some of the project activities and project personnel.

ANNEX A

DAEE ANNUAL REPORTS

1. 1981-82
2. 1982-83

UNIVERSITY OF DAR ES SALAAM

FACULTY OF AGRICULTURE, FORESTRY AND VETERINARY SCIENCE

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

ANNUAL REPORT: JULY 1981 - JUNE 1982

1. INTRODUCTION

The year 1981/82 was an extremely busy one for the Department of Agricultural Education and Extension. After going without an option class for 3 years, we at last had an option class consisting of three B.Sc. (Agric.) students. Thus, in addition to teaching common extension courses, there was very extensive teaching of our option students. The other major activity for Continuing Education in Agriculture (CCEA); which is still attached to the Department. In connection with this, we were able to conduct two workshops (Workshop for Managers of Tractor Mechanized Field Operations, and Cow-Pea Workshop for some Extension Workers in Morogoro District); two short courses (A Short Course on Agromechanization for Secondary School Agricultural Teachers and a Short Course on Rural Economy and Extension for M.A.T.I. Tutors); and one seminar (Seminar on Farm Management and Field Operations for Senior NAFCO Farm Managers).

These courses, seminars and workshops were conducted at minimum cost to the University. We mounted a very effective fund raising campaign. As a measure of our success, we collected the following amounts of money for the various activities:

COURSE/SEMINAR/WORKSHOP	SPONSOR	DONOR AND AMOUNT
1. Workshop for Managers of Tractor-Mechanized Field Operations	University of Dar es Salaam and various Agricultural Parastatals	CANADIAN GOVERNMENT 171,630.00
2. Short Course on Agromechanization for Secondary School Agricultural Teachers	University of Dar es Salaam and Ministry of National Education	ELIMU 150,440.00
3. Seminar on Farm Management and Field Operations for Senior NAFCO Farm Managers	University of Dar es Salaam and NAFCO Headquarter	NAFCO 40,000.00
4. Workshop on Cowpeas	University of Dar es Salaam and Utah State University	U.S.A.I.D. 29,079.00
5. Short Course on Rural Economy and Extension for M.A.T.I. Tutors	University of Dar es Salaam and KILIMO	KILIMO 68,400.00
		459,549.00

Looking at the figures and activities, one can understand why the Department is elated at its success. We look forward to a more active year ahead of us in terms of degree level teaching and outreach activities of the CCEA.

2. STAFF MATTERS

2.1 Academic Staff

Position	Name	Qualifications
Lecturer and Acting Head of Department	I. J. Lupanga	B.Sc. (Agric.) Makerere M.Sc. (Agric. Ed.) WVu
Professors	Vacant	
Associate Professors	Giltrow, D.	B.A. (Social St.) Univ. of Mich. M.Sc. (Communic.) Syracuse Ph.D. (Ed. Tech.) Syracuse
	Brewer, C. H.	B.A. Brigham Young Univ M.A. Univ. of Utah Ph.D. Brigham Young Univ.
	Sensenig, B.	B.Sc. (Elect. Eng.) M.I.T. Ph.D. (Social Psychology) Cornell
Senior Lecturers	Vacant	
Lecturers	Keregero, K.J.B.	B.Sc. (Agric.) UDSM M.Sc. (Cont. Ed.) Wisconsin Ph.D. (Cont. Ed.) Wisconsin
	Weber, J.J.	B.A. (Phil.) Trier M.A. (Theol.) St. Edward's College, London M.Sc. (Agr./Rural Soc.) Bonn Ph.D. (Agr./Rural Soc.) Bonn
	*Madalla, A.N.	M.Sc. (Motion Picture Engin.) Leningrad
	*Mattee, A.Z.	B.Sc. (Agric.) UDSM M.Sc. (Agric.) Wisconsin
Assistant Lecturers	*Rutachokozibwa, V.	B.Sc. (Agric.) UDSM M.Sc. (Agric. Ed.) Iowa
	**Lijongwa, C.	B.Sc. (Agric.) UDSM M.Sc. (Agric. Ext.) Reading
	*Mvena, Z.S.K.	B.Sc. (Agric.) USDM M.Sc. (Agric. Ext.) Missouri

Honorary Lecturer	*Kavishe, P.R.	Diploma (Ed.) B.A. (Ed.) USDM M.A. (Ed. Admin.) UC-Riverside

* On study leave overseas
** On one year unpaid-leave

2.2 Administrative and Technical Staff

Position	Name
Technician Grade I (Audio Visual Aids)	Amandi, S.
*Technician Grade II (Audio Visual Aids)	Mwanga, K.G.J.
Personal Secretary I	Mbwana, S.S. (Mrs.)
Personal Secretary II	Hassanali, S.F. (Miss)
Drivers	Mbezi, O. Robert, E.
Messenger	Mtuli, H.L.
Janitor	Mbawala, W.

*On 3-month study leave ate Nyegezi Social Training Centre: May-August, 1982.

2.3 Staff Student Ratio

During the academic year 1981/82, there were 6 members in residence at critical periods when AEE courses were due. The 6 members are the ones who participated in teaching.

The table below gives an indication of the staff student ratio as it existed during the period under review.

Number of teaching staff	Number of Students taught (Agriculture, Forestry and Veterinary Science Class	Year	No. of Students
6	B.Sc. (Agric.)	I	72
	B.Sc. (Agric.)	II	69
	B.Sc. (Agric.)	III	35
	B.Sc. (Agric.)	III	3
	B.Sc. (For.)	III	18
	B.V.Sc.	IV	13
6	Total		210

Ratio: 6:210 = 1.35

2.4 Staff Arrivals

Three members of staff arrived from overseas during the material time. Mr. V. Rutachokozibwa returned to the Department after completing his M.Sc. studies at Iowa State University. Professor B. Sensenig joined the department for the first time from Utah State University, U.S.A. He took up the post of rural sociologist which had been left vacant after Prof. Brain's resignation the previous year. Mr. A.Z. Mattee returned briefly to conduct his Ph.D. research in Tanzania, from Wisconsin, U.S.A.

2.5 Staff Departures

Mr. M. Mdengho, a driver, left the department and was transferred to the main campus in Dar es Salaam. Mr. V. Rutachokozibwa, who had been with us for most of the year, left towards the end of May, for Ph.D. studies at Iowa. Mrs. C. Edelsten (see Ms. Chiku Lijongwa) asked and got a one year leave-without pay, for health reasons. Mr. Mwanga jointed the Nyegezi Social Training Centre for a 3-month Journalism Course in May.

2.6 Staff Promotions/Recategorization

Dr. K. J. B. Keregero was recategorized to Lecturer from Assistant Lecturer on completion of his Ph.D. studies. Miss S. F. Hassanali was recategorized to Personal Secretary II from Personal Secretary III as a result of the salary scheme now in operation. Mr. S. Amandi was appointed Technician Grade I on contract terms after working as an A-V Aids Assistant on permanent terms, before the University realized that he was past his retirement age.

3. STUDENTS AND THEIR ACTIVITIES

Three students joined the Agricultural Education and Extension Option. These were Mr. A.M. Omari, Mr. B.L.M. Bakobi and Mr. K.M.¼. Rukiko. All three began thinking about their special projects early during the year. Mr. Omari decided to tackle the evaluation of an ongoing educational programme while Mr. Bakobi selected an extension topic. Mr. Rukiko selected to look at the sociological aspects which influence extension in two villages. The project advisors from Omari, Bakobi and Rukiko are Mr. I.J. Lupanga, Dr. Keregero and Prof. Sensenig, respectively. Two of the students spent five weeks of practice teaching at M.A.T.I. Ilonga from March 15 to April 17, 1982. The third student concentrated on adult education teaching in and around Morogoro.

4. TEACHING PROGRAMME

The department offered courses at undergraduate and postgraduate levels. The courses taught and those who taught plus the contact hours are given below:

4.1 Undergraduate Courses

First Year B.Sc. (Agr.)	Contact Hours	Instructor
AEE 105	18	Sensenig
AEE 106	12	Lupanga
AEE 107	12	Lupanga
Second Year B.Sc. (Agric.)		
AEE 205	18	Giltrow
AEE 206	18	Keregero
Third Year B.Sc. (Agric.)		
AEE 301	64	Keregero
AEE 302	40	Ruta
AEE 303	35	Weber
AEE 304	35	Weber
AEE 306	35	Ruta
AEE 307	46	Sensenig
AEE 308	20	Lupanga
AEE 309	35	Weber
AEE 310	25	Ruta
AEE 311	20	Dumelow
AEE 312	18	Lekule
AEE 313	35	Giltrow
AEE 314	35	Keregero
AEE 315	30	Sensenig
AEE 317	5 weeks	Teaching Practice
Third Year B.Sc. (For.)		
FO 303	20	Keregero
Fourth Year (Vet. Sc.)		
VEX 407	20	Keregero Sensenig Lupanga

4.2 Postgraduate Courses

RE 415	36	Keregero

4.3 Field Practicals

Field practicals for 2nd year students, were conducted at three villages in Morogoro District: Mlale, Melela and Maharaka. The major theme was Crop Storage. Teaching practice for 3rd year students was conducted at M.A.T.I. Ilonga and at Adult Education Centres in Morogoro town.

5. EXAMINATIONS

Final Examinations for option students have yet to be done, but performance in the common extension courses during final examinations last November was good.

6. PROFESSIONAL CONTRIBUTIONS AND CONFERENCES

Because of a heavy teaching load, members of staff participated in few seminars outside the Faculty as shown below:

Name of Staff Member		Seminars/Conferences/Workshops/Symposia Attended
Prof. D. Giltrow	1.	Annual Conference of the National Council for Agricultural Education, at Tengeru 24-26 February, 1982
Prof. B. Sensenig	1.	Zonal Seminar for Southern Highlands Extension Staff at Uyole Agricultural Centre 15-18 June, 1982.
	2.	Evaluation of "Siasa ni Kilimo".
Dr. K.J.B. Keregero		1. Rural Survey's for President's Office in 3 Villages of Dodoma District: September 1981 (3 weeks) and March 1982 (2 weeks).
	2.	Zonal Seminar for Southern Highlands Extension Staff at Yuole Agricultural Centre 15-18 June, 1982.
Dr. J. J. Weber	1.	Zonal Seminar for Southern Highlands Extension Staff at Uyole Agricultural Centre 15-18 June, 1982.
Mr. I.J. Lupanga	1.	Chairman of a University wide Committee for evaluating the Iringa Resolution, "Siasa ni Kilimo."
	2.	Annual Conference of the National Council for Agricultural Education at Tengeru, 24-26 February, 1982.
	3.	Zonal Seminar for Southern Highlands Extension Staff at Uyole Agricultural Centre 15-18 June, 1982.

Mr. V. Rutachokozibwa	1.	Annual Conference of the National Council for Agricultural Education at Tengeru, 24-26 February, 1982.
Mr. A.Z. Mattee	1.	Annual Conference of the National Council for Agricultural Education at Tengeru, 24-26 February, 1982.

In addition, all members of staff participated in one way or another in running the workshops/seminars and conferences outlined in the introduction to this report.

7. RESEARCH WORK AND EXTENSION ACTIVITIES

The major preoccupation of the Department was still the Village Development Project covering 16 villages in Morogoro District. Most of those villages with non-crop projects e.g. fishponds at Tandaei and Tawa; pit-sawing at Luholole and Kifindike and tree planting at Kifindike; goat rearing at Lukulunge did well. Only one of the non-crop projects, i.e. pit-sawing at Peko Misegese village did not take-off because expert sawyers have not been found. The piggery project at Tangeni was wound up during the year leaving us with only a monitoring and extension role.

The godown projects at Mkono wa Mara, Maseyu and Manza villages are at different stages of construction. The Manza godown is held up for lack of corrugated iron sheets; the Maseyu project is held up because half the consignment of corrugated iron sheets sent to the village by us had been stolen. The Mkono wa Mera godown is stalled because of scarcity of cement.

The crop projects at Manza, Maseyu, Mkono wa Mara, Tungi, Lubungo (Sanga Sanga) Lubungo (Ngerengere), Maseyu and Tulo had a very lean season because of the serious drought which affected the area during December-April 1982. Results are still being evaluated. The soya bean project at Kikundi Village failed to take off yet because of mainly, apathy on the part of the village leadership. Funds earmarked for the project is still retained by us.

The Lukobe Water Project, funds for which had been obtained from the Britain-Tanzania Association, has yet to be completed. This project worth more than 500,000/= is now held up by the slowness of the Regional Water Engineer's Office. The Department mobilized the Lukobe villagers in digging the trenches for pipe laying. This work is now almost complete but the pipe laying by the water personnel is grossly behind schedule. The trenches are in fact silting up.

8. FACILITIES

Construction of the Centre for Continuing Education in Agriculture and Department of Agricultural Education and Extension complex is nearing completion. Finishing touches will be delayed, however, because of the lack of glass in the official market. If this item can be secured, construction will be completed in July, 1982. The Phase I hostel which is

part of the complex, was handed over to the University towards the end of 1981.

A large consignment of Audio-Visual equipment and materials which had been ordered, arrived during the reporting period.

9. VISITORS

Our department was visited by a number of visitors who came to consult, see, discuss or request services. Hereunder is a partial list of the visitors.

Haule, A.P.K. (Mrs.	-	Kilimo, Headquarters
Lulandala, G.D.	-	Kilimo Headquarters
Kalhluw Cloud	-	University of Arizona, Tucson
James W. Oxley	-	Colorado State University
Joseph B. Goodwin	-	USAID/Tanzania
K. Johnson	-	USAID/Tanzania
U. Tigges-Ismael	-	c/o National Coconut Development Project, Dar es Salaam
H.L. Barkey	-	-do-
R. Ogli-Trey	-	-do-
N.A.S. Temu	-	-do-
H. Katuga	-	Elimu Headquarters
Prof. E. Bortei-Doku	-	Department of Agr. Extension, University of Ghana
George A. Reagan	-	Agricultural Cooperative Development Int., Washington D.C.
Bartlett Harvey	-	-do-
Marianne Beckmann	-	Agricultural University, Copenhagen, Denmark
Bodil Pedersen	-	Agricultural University, Copenhagen, Denmark
French Ruddy	-	USDA, Washington D.C.
Robert Maxwell	-	West Virginia University, U.S.A.
Erik Fog	-	Denmark

Stephen Collins	-	C.W.S., Nairobi
Harold Miller	-	Nairobi
Dianne White	-	World Bank, Washington, D.C.
Dr. L. Msambichaka	-	ERB, Dar es Salaam
Dr. J. Ndulu	-	Economics Dept., UDSM
C.K.J. Ponjee	-	UAV, Mbeya
Annette Benad	-	University of Bonn
J.P. Semiono O.T. Kibwana L.H. Mlowe	-	Cooperative College, Moshi
Gosta Juhen	-	Svalov, Sweden
Marianne Lundahl	-	Lund, Sweden
James K. Msechu	-	Livestock Production Research Institute, Mpowapwa
Gordon, H.	-	Arkansas, U.S.A.
Prof. Dietrich Goldschmidt	-	Max Plan Institute for Educational Research, West Berlin

10. PUBLICATIONS

Giltrow, D. "Thinking About a Communications Textbook." Paper presented at the Sixth Annual Conference of the National Council for Agricultural Education; Arusha, 24-26 February, 1982.

Keregero, K.J.B. "Critical Behaviours: A Potential Basis for Understanding the Job of Extension Workers in Tanzania." Paper presented at the Sixth Annual Conference of the NCAE in Tanzania; Arusha, 24-26 February, 1982.

Keregero, K.J.B. "The Discrepancy Between the Way Extension Workers are Trained and the Way they Function." Paper presented at the Sixth NCAE Annual Conference, Arusha, 24-26 February, 1982.

Lupanga, I.J. "The Case for the Practical and Applied Curricula in a System Dominated by the Pure and Literary Curricula." Paper presented at the Sixth NCAE Annual Conference; Arusha, 24-26 February, 1982.

Rutachokozibwa, V. "Increased Food Production: Can Schools Help?" Conference Paper, December, 1981.

Rutachokozibwa, V. "The School Farm Concept: What do Teachers Think?" Paper presented at the Sixth NCAE Annual Conference; Arusha, 24-26, February, 1982.

Sensenig, B. "The New Centre for Continuing Education in Agriculture at Morogoro." Paper presented at the Sixth NCAE Annual Conference; Arusha, 24-26 February, 1982.

11. INTENSITY OF USE OF VISUAL AIDS EQUIPMENT FROM JULY 1981-JUNE 1982

(a) 16 mm Projector

Department	No. of times used
Food Science	12
Agricultural Education & Extension	9
Veterinary Science	16
Security Dept.	2
Students	26
Utamaduni Chuo Kikuu	12
CCM Umoja wa Vijana	14
Forestry Division	1
Crop Science	1
T.T.P.C.	12
	105

(b) Overhead Projector

Department	No. of times used
Food Science	14
Veterinary Science	61
Agricultural Education & Extension	10
Forestry Division	8
Students	2
Soil Science	16
Agricultural Engineering	2
	113

(c) Slide Projector

Veterinary Science	62
Agricultural Education & Extension	4
Crop Science	2
Soil Science	13
Forestry Division	8
T.T.P.C.	1
Rural Economy	3
Agricultural Engineering	2
	95

(d) PA Amplifier

Muwata	2
C.C.M.	22
Lions Club	6
Umoja wa Vijana	14
Students	2
Utamaduni	3
Police Traffic	5
Crop Science	1
	55

(e) Film Strip Projector

Crop Science	1
Agricultural Education & Extension	2
	3

(f) Opaque Projector

Forestry Division	7
Agricultural Education & Extension	1
	8

(g) Cassette Recorder

Students	26
Utamaduni Chuo Kikuu	12
Umoja was Vijana CCM	14
	52

12. CONCLUSION

The year 1981/82 was a very busy one for us in terms of teaching and CCEA work. Our activities within the context of the CCEA, are already receiving local and international attention. This is attested to by the number of inquiries we have been receiving from potential sponsors of agricultural related seminars/workshops/conferences/short courses. We were able to achieve much with limited space and equipment resources. We look forward to even greater things now that the new Centre complex is about to be completed.

Though we were not very busy in the area of research because of heavy teaching commitments, we are planning several extension projects for the coming year. Our ongoing projects are in the process of being weaned so that they can fend for themselves, while we spread our efforts to other villages.

I.J. Lupanga
Acting Head
DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

The University of Dar es Salaam

Faculty of Agriculture, Forestry and Veterinary Science

Morogoro

DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

AND

CENTRE FOR CONTINUING EDUCATION

ANNUAL REPORT

(July 1, 1982 - June 30, 1983)

1. INTRODUCTION

During this reporting period, the Department of Agricultural Education and Extension continued to teach regular courses for undergraduate and graduate students. Beginning January 1983, the Department had an undergraduate class of 7 students which was an improvement compared to only 3 last year. Members of staff were also busy carrying out ongoing research work as well as extension services in selected villages.

The Centre for Continuing Education (CCE) continues to be part of the Department and during this reporting period there was a sharp increase in CCE activities. Members of staff were particularly busy because CCE activitie. ran concurrently with regular Departmental programmes.

2. STAFF LIST

The staff position in the Department as of 30th June, 1983 was as follows:

2.1 Academic Staff

Position	Name	Qualification
Lecturer and Head of Department	K.J.B. Keregero	B.Sc. (Agric.)(Hons)(Dar) M.Sc. (Con. Ed.) Wisconsin Ph.D. (Con. Ed.) Wisconsin
Professors	Vacant	
Associate Professors	D. R. Giltrow	B.A. (Social St.) Michigan M.Sc. (Communic.) Syracuse Ph.D. (Ed. Tech.) Syracuse
	C. H. Brewer	B.A. Brigham Young M.A. Utah Ph.D. Brigham Young
	B. Sensenig	B.Sc. (Elect. Eng.) M.I.T. Ph.D. (Social Psycho.) Cornell
Senior Lecturer	Vacant	
Lecturers	J. J. Weber	B.A. (Phil.) Trier M.A. (Theol.) St. Edward's M.Sc. (Agr./Rural Soc.) Bonn Ph.D. (Agr./Rural Soc.) Bonn
	A. Z. Mattee	B.Sc. (Agric.)(Hons)(Dar) M.Sc. (Cont. Ed.) Wisconsin Ph.D. (Con. Ed.) Wisconsin

	A. N. Madalla	M.Sc. (Motion Pict. Eng.) Leningrad Ed.S. Utah State
	*I. J. Lupanaga	B.Sc. (Agric.) Makerere M.Sc. (Agric. Ed.) WVU
Assistant Lecturers	*Z.S.K. Mvena	B.Sc. (Agric.)(Hons)(Dar) M.Sc. (Ag. Ext.) Missouri
	*V. Rutachokozibwa	B.Sc. (Agric.)(Hons)(Dar) M.Sc. (Agric. Ed.) Iowa State
	*C. Lijongwa (Ms)	B.Sc. (Agric. Econ.) Wales M.Sc. (Agric. Ext.) Reading
Tutorial Assistant	N.M. Mollel	B.Sc. (Agric.)(Hons)(Dar)
Research Associate	J. Gonsalves	M.Sc. (Comm.) Michigan State

*On study leave.

2.2 Administrative and Technical Staff

Name	Position
B.L.M. Bakobi	Manpower Management Officer II
S. Amandi	Technician I
K.G.J. Mwanga	Technician I
S.S. Mbwana (Mrs.)	Personal Secretary I
S.F. Hassanali (Miss)	Personal Secretary I
H.L. Mtuli	Head Messenger
A. Shabani (Miss)	Messenger/Cleaner
C. John	Messenger/Cleaner
W.P. Mbawala	Hostel Attendant
E. Robert	Driver I
O. Mbezi	Driver I

2.3 Staff-Student Ratio

The department had on the average of 7 members of staff in residence during the period under review. They were all engaged in teaching at one time or another.

The Department undertakes to teach a number of common courses to students in all Divisions of the Faculty of Agriculture, Forestry and Veterinary Science. Some indication of the staff student ratio can be derived from Table 1 below:

Table 1: Staff-Student-Numbers

Number of Teaching Staff	Class	Number of Students Taught By Nov. 1982	By June 1983
7	B.Sc. (Agric.) I	72	92
	B.Sc. (Agric.) II	69	70
	B.Sc. (Agric.) III	33	66
	B.Sc. (Agric.) III AEE Option	3	7
	B.Sc. (For.) III	18	73
	B.V.Sc. IV	13	
	M.Sc.	13	
Total 7		221	308

2.4 Staff Arrivals and Recruitment

Three academic members of staff arrived from overseas during this reporting period. Mr. Z.S.K. Mvena returned to the Department to conduct his Ph.D. research in Njombe District, Tanzania, following successful completion of his coursework at the University of Missouri, Columbia, USA. Mr. A.N. Madalla resumed his duties in the Department following successful completion of his Educational Specialist degree at Utah State University, USA. Following the return of Dr. A. Z. Mattee who just completed his Ph.D. studies at the University of Wisconsin-Madison, the Department now has two local Ph.D. holders.

The following members of staff joined the Department this year:

N.M. Mollel	:	Tutorial Assistant
B.L.M. Bakobi	:	Manpower Management Officer II
C. John	:	Messenger/Cleaner
A. Shabani (Miss)	:	Messenger/Cleaner

In addition, the following Morogoro-based staff from the Institute of Development Studies generously served as part-time lecturers in the Department.

J.A. Ngasongwa	:	Lecturer
V. Kyulule	:	Assistant Lecturer

2.5 Staff Departures

The following members of the Department were away overseas for postgraduate studies by the end of this reporting period.

V. Rutachokozibwa	:	Iowa State University, U.S.A.
I.J. Lupanga	:	Cornell University, U.S.A.

Mr. J. Gonsalves who had been attached to the Department as Research Associate for one year left for the USA to write up his Ph.D. Thesis at Cornell University.

2.6 Staff Promotions

Two non-academic members of the Department were promoted this year:

Staff Member	Old Post	New Post
S.F. Hassanali (Miss)	Personal Secretary II	Personal Secretary I
K.G.J. Mwanga	Technician II	Technician I

3. STUDENTS AND THEIR ACTIVITIES

The number of undergraduate students who took courses in the Department as of June 1983 is as shown in Table 1.

After resuming the option programme with only 3 students last year, the Department enrolled 7 students this year. Five of these students carried out their Special Projects in villages while 2 developed teaching packages under the auspices of the Audio-Visual Unit of the Department.

4. TEACHING PROGRAMME

The following undergraduate and postgraduate courses were offered by the Department.

4.1 Undergraduate Courses

First Year B.Sc. (Agric.)	Contact Hours	Instructor
AEE 105	18	Kyulule
AEE 106	12	Ngasongwa
AEE 107	12	Weber
Second Year B.Sc. (Agric.)	**Contact Hours**	**Instructor**
AEE 205	18	Madalla/Giltrow
AEE 206	18	Keregero
Third Year B.Sc. (Agric.)		
AEE 301	64	Keregero/Sensenig/ Weber/Brewer
AEE 302	40	Lupanga
AEE 303	35	Weber
AEE 304	35	Weber
AEE 305	35	Weber
AEE 306	35	Sensenig
AEE 307	46	Sensenig
AEE 308	20	Lupanga
AEE 309	35	Edelsten
AEE 310	25	Weber
AEE 311	20	Frederiksen/Madalla

Third Year B.Sc. (Agric.) (continued)

AEE 312	18	Ryoba (Mrs.)
AEE 313	35	Giltrow/Madalla
AEE 314	35	Keregero
AEE 315	30	Sensenig
AEE 316	30	Ngasongwa
AEE 317	5 weeks	Teaching Practice

Third Year B.Sc. (For.)

FO 303	20	Keregero

Fourth Year (Vet. Sc.)

VEX 407	20	Keregero/Sensenig/ Lupanga

4.2 Postgraduate Courses

C_1	30	Sensenig

4.3 Field Practicals

Field practicals for First Year students were conducted on campus in the form of an orientation to Audio-Visual techniques and teaching materials. Those for Second Year students focused on problems constraining rural development work. Third Year students spent 32 contact hours in Changarawe, Kipera, Mkono wa Mara, Kitungwa and Pangawe identifying village development needs that could be fulfilled through training. They also engaged in preparing and carrying out training programmes to fulfill villagers' needs. Our Third Year AEE Option students spent 5 weeks on teaching practice at Ruvu Secondary School, Kilosa Secondary School, and Mzumbe Secondary School.

5. EXAMINATIONS

The following papers were examined in the Department during the November 1982 University Examinations.

Course	Examination Paper	No. of Students
B.Sc. (Agric.) I	Agricultural Education I	72
B.Sc. (Agric.) II	Agricultural Education II	69
B.Sc. (Agric.) III	Agricultural Education III	3
	Agricultural Education IV	3
	Agricultural Education V	3
B.Sc. (Agric.) III	Agricultural Education VI	3
	Agricultural Education VII	3
	Agricultural Education VIII	3
	Teaching Practice IX	3
	Special Project X	3
	Agricultural Extension XI	33

The Department utilized Dr. L.C. Pickett and Mr. D.G. Acker as External Examinars during the above examinations. The two External Examiners are attached to the Farmers Training and Production Project of the Ministry of Agriculture, Dar es Salaam.

6. PROFESSIONAL CONTRIBUTIONS

6.1 Involvement in National and International Activities

The staff of the Department continued their involvement in various activities of national and international interest. Prof. D. Giltrow started and continued work on a Forestry Extension Manual in collaboration with other writers sponsored by FAO, Rome. He also continued to serve on the national committee for the World Food Day.

Dr. Keregero continued to serve on an interdisciplinary team of experts responsible for assisting the President's Office in developing appropriate strategies for rural development. He also continued to serve as member of the following committees:

(i) National Coordinative Committee for the Farmers Training and Production Project.

(ii) Technical Sub-committee for the National Coordination Committee of the Training for Rural Development Project.

(iii) Committee on Scientific Education and Manpower Development Research of the Tanzania National Scientific Research Council.

6.2 Research by Staff and Students

Despite the heavy teaching and extension service load that characterized this whole year, staff and students in the Department undertook the following research projects:

	Title	Researchers
1.	Assessment of the contribution of the top-down and bottom-up approaches on the performance of communal development projects.	B.L.M. Bakobi K.J.B. Keregero
2.	Socio-cultural factors affecting communal development projects.	K.M.P. Rukiko B. Sensenig
3.	Integration of theory and production in secondary schools as a measure of success of education for self-reliance.	A.M. Omari J.J. Weber I.J. Lupanga
4.	Socio-cultural factors which influence agricultural extension teaching and learning.	D.F. Rutatora K.J.B. Keregero

5.	A study of the communication process at village level.	R.M. Wambura K.J.B. Keregero
6.	A study of village leadership and how it influences village development projects.	T.A. Mmbaga K.J.B. Keregero
7.	Developing extension teaching materials on composting for use in agricultural training institutes.	Chilimboyi A.N. Madalla
8.	Testing the effectiveness of different teaching aids among different secondary school classes.	I.K. Mushy A.N. Madalla
9.	Constraints to the establishment of small-scale communal village projects.	K.J.B. Keregero

In addition, the Department completed an analysis of the Musoma Resolution in relation to the University of Dar es Salaam's Faculty of Agriculture, Forestry and Veterinary Science. This study had been assigned to the Department by the Board of the Faculty of Agriculture, Forestry and Veterinary Science. Prof. B. Sensenig coordinated this study.

7. COOPERATION WITH OTHER AGENCIES

The Department continued to cooperate with other agencies. The United States Agency for International Development (USAID) continued to finance the establishment of the Department of Agricultural Education and Extension and Centre for Continuing Education (CCE). Apart from major repairs and lack of window glass, most of the building construction under Phase I was completed during the year.

The Ford Foundation extended its funding for the Village Department Project to facilitate completion of various small-scale communal village projects. The Britain-Tanzania Society continued to finance the Lukobe Village Water Project which was completed during the year. The German Agency, DAAD, supported the Department through the supply of a photographer, a dictating machine and sponsorship for Dr. Weber.

The Department established linkages with several other agencies with a view to seeking financial support for the activities of the Centre for Continuing Education (see item 8).

8. THE CENTRE FOR CONTINUING EDUCATION (CCE)

8.1 Staff and Programmes

The Department continued to manage the newly established Centre for Continuing Education. Following the recruitment of Mr. B.L.M. Bakobi, staffing for the CCE was as follows:

K.J.B. Kereger	:	Acting Director
C.H. Brewer	:	Deputy Director

B.L.M. Bakobi : Manpower Management Officer II
W.P. Mabawala : Hostel Attendant

The CCE experienced a very busy year with a fully loaded schedule of programmes as shown in Table 2:

Table 2. CCE Programmes (July 1982 - June 1983)

Programme	Dates	Sponsor	No. of Participants
1. International Short Course on Research Methods in Forestry	Nov. 5 - Dec. 13, 1982	IDRC	16
2. Short Course for Regional Livestock Development Officers	Jan. 16-26, 1983	Ministry Livestock	23
3. Short Course on Coconut Production and Extension (I)	March 7-13 1983	National Coconut Development Programme (NCDP)	20
4. Short Course on Cotton Agronomy, Economics and Extension	March 13-26 1983	Tanzania Cotton Authority	24
5. Chemistry Workshop	April 14-16 1983	Ministry of Education	7
6. Short Course on Farm Management and Field Operations for Senior Farm Managers	April 17 - May 1,1983	National Agricultural and Food Cooperation (NAFCO)	12
7. Short Course on Coconut Production and Extension (II)	May 2-14, 1983	National Coconut Development Programme (NCDP)	24
*8. Workshop on Resource Efficient Farming Methods	May 16-20 1983	TARO, USAID	320
9. Agricultural Tutors Training Course	June 6 - August 26, 1983	Ministry of Agriculture	12

* This was coordinated by a separate Steering Committee.

8.2 The Audio-Visual Unit

The Audio-Visual Unit continued to provide services to the University and the general public on request. The lack of window glass on all buildings of the Centre for Continuing Education and Department of

Agricultural Education and Extension has often made it difficult to store sensitive Audio-Visual equipment and other materials.

The intensity of use of Audio-Visual equipment during the year under review was as given below:

8.2.1 16 mm Projector

Department/Agency	No. of times used
Animal Science	2
Agricultural Education & Extension	20
Crop Science	1
Forestry	2
Veterinary Science	10
Development Studies	1
Administration	1
C.C.M	10
Schools and Other Organizations	5
Total	52

8.2.2 Slide Projector

Animal Science	6
Agricultural Education & Extension	30
Agricultural Engineering	10
Food Science & Technology	12
Soil Science	1
Forestry	29
Veterinary Science	49
Total	137

8.2.3 Overhead Projector

Animal Science	18
Agricultural Education & Extension	56
Crop Science	4
Soil SCience	27
Forestry	45
Veterinary Science	66
Total	216

8.2.4 Filmstrip Projector

Agricultural Education & Extension	56

8.2.5 Opaque Projector

Agricultural Education & Extension	56

8.2.6	Public Address System	No. of times used
	Animal Science	3
	Agricultural Education & Extension	1
	Soil Science	1
	Forestry	1
	Administration	3
	C.C.M.	20
	Schools and Other Organizations	39
	Total	68
8.2.7	Cassette/Tape Recorder	
	Agricultural Education & Extension	12
8.2.9	Electronic Stencil Cutter	
	Agricultural Education & Extension	11
	Crop Science	6
	Soil Science	1
	Forestry	2
	Total	20

9. CONFERENCES, SEMINARS, CONSULTANCIES

Dr. K.J.B. Keregero attended an international seminar on Facilitating Learning for Adults in Development which was held at the Institute of Development Studies, University of Sussex, England from November 7 to December 17, 1982. This was followed immediately by a working visit to the Wolverhampton Polytechnic in England from December 18-23, 1983 for discussions concerning the establishment of an Agricultural Tutors Training Course to the jointly sponsored by KILIMO and the British Council at the Centre for Continuing Education.

Professor D.R. Giltrow made working visits to forestry projects in Kenya during the period February 26 - March 7th, 1983 and to FAO, Rome from March 8-14, 1983 in connection with work on the Forestry Extension Manual. He also made a follow-up visit to the Wolverhampton Polytechnic on March 22, 1983.

10. PUBLICATIONS

Keregero, K.J.B.: "What Goes on in the Job: A Potential Basis for Designing Training for Extension Workers in Tanzania." International Agriculture and Forestry, Publication No. 80, 1982.

Giltrow, D.: "Thinking About a Communications Textbook." Paper presented at the Sixth Annual Conference of the National Council for Agricultural Education; Arusha, 24-26 February, 1982.

Keregero, K.J.B.: "Critical Behaviours: A Potential Basis for Understanding the Job of Extension Workers in Tanzania." Paper presented at the Sixth Annual Conference of the NCAE in Tanzania, Arusha 24-26 February, 1982.

Keregero, K.J.B.: "The Descrepancy Between the Way Extension Workers are Trained and the Way they Function." Paper presented at the Sixth NCAE Annual Conference, Arusha, 24-26 February, 1982.

Lupanga, I.J.: "The Case for the Practical and Applied Curricula in a System Dominated by the Pure and Literary Curricula." Paper presented at the Sixth NCAE Annual Conference, Arusha, 24-26 February, 1982.

Rutachokozibwa, V.: "Increased Food Production: Can Schools Help?" Paper presented at the Sixth NCAE Annual Conference, Arusha, 24-26 February, 1982.

Sensenig, B.: "The New Centre for Continuing Education in Agriculture at Morogoro." Paper presented at the Sixth NCAE Annual Conference, Arusha, 24-26 February, 1982.

Lupatu, M.A. and A.Z. Mattee: "Introduction to Agricultural Economics: A Textbook for Tanzanian Schools and Colleges " Tanzania Publishing House, Dar es Salaam, 1982.

Madalla, A.N.: "A Process for Developing Instructional Modules Based on Technical Data." A Practicum Report. Utah State University, 1982.

Sensenig, B.: "Analysis of the Musoma Resolution in Relation to the University of Dar es Salaam's Faculty of Agriculture, Forestry and Veternary Science." Morogoro, May 28, 1983.

Weber, J.J.: "Rural Cooperatives in the Regional Development Process." In: Bonn Studies on Rural Development in the Third World. Edited by Professor H. Koetter, Professor K.H. Junghans and Dr. H.J. Krekeler. Breitenbach Publishers, Saarbruncken, Germany, 1982.

In addition, pictorial and graphic materials were created for a number of contributions to journals by professional members of staff and students.

11. VISITORS/CONSULTANTS

During the year the Department received 70 visitors. These included the following consultants:

M.W. Lusk	:	Utah State University
P. Riley	:	Utah State University
T. Sensenig	:	Morogoro USAID Agric. Educ. & Ext. Project
G.D. Wilkinson	:	Wolverhampton Polytechnic
R.A. Wesslemann	:	USAID Washington
O. Hess	:	USAID Washington

Other visitors included:

D. Miller	:	U.S. Ambassador to Tanzania
M. Miller (Mrs.)		
A. Moore	:	British Council, Dar es Salaam
R. Harvey	:	USAID, Dar es Salaam
R. Maxwell	:	West Virginia University, USA
S. Khamis	:	Director of Extension, Dar es Salaam
S. Rashid	:	Director of Agriculture, Zanzibar

12. CONCLUSION

The year 1982/83 saw one more of the Department's local-staff complete his Ph.D. degree and two others complete their M.Sc. degrees in the U.S.A.

It was a very busy year in the sense that an average of only 7 members of academic staff carried the heavy teaching load of the Department and the tight schedule of the Centre activities. Research activities suffered somewhat in light of these engagements.

ANNEX B

DAEE CURRICULUM

COURSE OFFERINGS IN AGRICULTURAL EDUCATION AND EXTENSION

I - III THIRD YEAR OPTION/IV - VII M.SC. PROGRAMME

I. Objectives of the B.Sc. Agricultural Education/Extension 3rd Year Option

(1) To prepare propsective teachers for the Secondary School Agricultural bias schools.
(2) To train prospective lecturers and tutors for agricultural colleges.
(3) To prepare field officers for the Ministry's agricultural extension services.

II. Summary of the AEE Option Programme: (All hours listed refer to total contact hours)

Extension Bias Course:

AEE 105	Intro. to Rural Soc.....	18
106	Admin. Practices.....	12
206	Village Development.....	18
301	Agric. Extension.....	64
307	Rural Sociology.....	46
309	Farm Management.....	35
313	Audio-Visual Methods....	35
314	Adult & Nonformal Ed....	35
316	Agric. Administration...	30
321	Project Appraisal..... (alternative to AEE 315)	30
300	Special Project (required of all students)	

Training Bias Courses:

AEE 107	Intro. to ext./Ed.....	12
205	Agric. Comm in. Skills....	18
302	Intro. to Agric. Ed.....	40
303	Psych. & Soc. of Ed.....	35
304	Psycho. of Vocat. Learn..	35
305	Theory & Practice of Ed..	35
306	Meth. Sec. Agric. Teach..	35
308	Curriculum Development...	20
310	Special Methods.....	25
311	Workshop Methods.....	25
312	An. Hus. For Schools.....	18
315	Educational Evaluation...	30
317	Teaching Practice.....variable	

Total Contact Hours: 323 + Special Project 323+Teach. Prac.

Optional Electives (requiring Dept. approval)

AEE322	Extension Prog. Plan..	36
323	Extension Evaluation....	18
324	Village Dynamics.....	18
325	Resource Assessment.....	18
AEE318	Agric. College Instr....	18
319	Women & Development.....	18
320	Technology & Dvlpmnt....	18

III. Course Details, B.Sc. Agricultural Education/Extension Option (All Hours listed refer to total contact hours).

First Year

AEE 105 Introduction to Rural Sociology (18 hours)

Basic sociological concepts and their application. Traditional social organization. The peasant farming system. Innovation and social change. Village leadership and the change agent. The human factor in development programmes.

AEE 106 Administrative Practices (12 hours)

Introduction to standard government procedures for finance, office, and personnel administration. Techniques of work planning. The control of vehicles and stores. Staff relations, motivation, and workers' committees. Committees and administrative communication.

AEE 107 Introduction to Agricultural Education/Extension (12 hours)

The role of nonformal education in development. Techniques for communicating innovations. The extension services. School agriculture at primary and secondary levels. Farmer training. Agricultural education as a career.

SECOND YEAR

AEE 205 Agricultural Communication Skills (18 hours)

Introduction to public speaking. Writing simple technical reports. Communication theory. Agricultural journalism and the use of mass media. Types of audio-visual technology.

AEE 206 Village Development (18 hours)

Village characteristics and leadership in Tanzania. Strategies for need assessment, project selection, and popular participation. Organization of village activities. Project financing. Development processes at the village level. The extension worker's role.

THIRD YEAR

AEE 300 Special Project: The project shall be in any of the branches of Rural Sociology, Agricultural Education, and Extension.

AEE 301 Agricultural Extension (64 hours) (Common course to all options)

Organization and systems of agricultural extension, adoption and diffusion and innovations. Methods of extension. Extension planning. Selected extension programmes. Extension evaluation. Extension staff training.

AEE 302 Introduction to Agricultural Education (40 hours)

Role of agricultural education in development. Curriculum objectives. History of school agriculture in East Africa. Farmer training. Current programmes, formal and nonformal, at each level. School leaver training. Special methods for teaching agriculture. Comparative curricula. Agricultural college instruction. Teaching materials. Project and skills assessment. Organizing the school farm. Types of Ministry support. Student motivation.

AEE 303 Psychology and Sociology of Education (35 hours)

Goals, methods, and schools of psychological inquiry. Human development and behavior: cognitive, emotional, social, skills, and language aspects. Socialization and school learning. Adolescence. Learning theories. Meaningful and rote learning. The reinforcement of learning. The school as a social system. Social and psychological aspects of the teacher's role. Learning in an out of school: the community, parent, peer groups, school discipline. Psychological tenets of Tanzanian education. Stratification and education systems.

AEE 304 Psychology of Vocational Learning (35 hours)

Theories of personality development. The functions and measurement of educational achievement, ability aptitudes, interest, and attitudes towards practical instruction. Simple and complex types of learning. Role of practice, feedback, and motivation in skill acquisition. Performance objectives and the concept of learning hierarchies. The mastery learning strategy. Formative and summative types of evaluation. Systematic planning of a training programme. Test construction and examinations.

AEE 305 Theory and Practice of Education (35 hours)

The scope of educational professions. Basic educational concepts and philosophies. Approaches to practical learning in traditional African education. Educational structures during the colonial period. Education for self reliance. Primary, secondary, teacher, and higher education in Tanzania. Approaches to adult education. Comparative education systems. Introduction to classroom and project teaching methods.

AEE 306 Methods of Secondary Agriculture Teaching (35 hours)

Objectives and organization of the present secondary school course in Tanzania. The curriculum and structure of training for different career streams. The agricultural curriculum from Form I to Form IV. The process for curriculum renewal and course planning. Planning instruction within the year. Timetabling and the allocation of periods between subjects. Preparing lesson plans. Intensive practice in developing teaching skills for classroom and project instruction. Textbooks and supporting materials. Preparing new material and audio-visual aids. Organization of the School Department, "Self reliance" activities, sports, and other extra-curricular activities. Use of the agricultural unit and school farm. Disciplinary practices.

AEE/RE 307 Rural Sociology (46 hours)

The individual and social systems; concepts of socialization and social control. Traditional societies in East Africa; features of peasant life. Types of emergent farming system. Population trends and changes in rural life during the colonial period and since Independence in Tanzania. Education as a factor in social change; the relationship of education to social structure. The emergent rural community. Theories of change; the diffusion of innovations. Social action programmes and popular participation. Bureaucratic approaches to development. Emergent rural problems, especially the youth employment situation. Rural development as an integrated process. Implications for village organization and urban-rural relationships.

AEE 308 Curriculum Development (20 hours)

The philosophical and psychological bases of curriculum development in reference to practical learning. Conceptual hierarchies required for mastering agriculture at different levels. Intensive analysis of agricultural curricula in Eastern Africa. Approaches to incorporating practical work in the curriculum; the development of localized options to suit environmental conditions. Critical review of existing teaching materials. Development of new teaching units.

AEE/RE 309 Farm Management for School Enterprises (35 hours)

Lectures shared with the RE 309 course: the economics of livestock enterprises, annual and perennial crops, fruit and vegetable enterprises. In place of practicals and seminars students take the linked course AEE 310 on school farm organization.

AEE 310 Special Methods for Agricultural Teaching (25 hours)

Field trips, student projects, and farm practicals in school agriculture. Supervision and planning of the school farm. Scheduling student participation, vacation arrangements. Operating a revolving fund and keeping records. Generating capital for improvements. The selection of enterprises suited to training needs; typical problems.

AEE 311 Workshop Methods for Agricultural Teaching (20 hours)

Workshop skills in the curriculum. Planning of practice sessions. Equipment required to support practical instruction. Crucial importance of maintenance and control. Use of the workshop units, the preparation of simple field tools. Innovations in rural technology, systems for water storage and management on school farms. The role and problems of farm mechanization in "self reliance" activities.

AEE 312 Animal Husbandry for Schools (18 hours)

The selection and management of animal husbandry enterprises within the school farm; a brief review of problems associated with the operation of poultry units, piggeries, smallstock, and dairy units.

AEE 313 Audio-Visual Methods (35 hours)

Theories and problems of communication with pupils and adults. The psychological and economic factors involved in the choice of various audio-visual media and equipment in the local environment. Preparing effective extension materials; the use of the mimeograph machine. Problems of visual literacy based on research done in Africa. The planning, construction, and utilization of visual aids. Operation of film projectors and public address systems. Administration of an audio-visual unit. Sources of audio-visual material in E. Africa.

AEE 314 Adult and Nonformal Education (35 hours)

Nonformal education in development, the international experience. The organization of adult education in Tanzania; experience with the functional literacy programme. Methods and materials suited to teaching adults. Continuing education and self reliance in the context of peasant communities. The transfer of rural technology. Conceptual needs related to farm modernization. Farmer training and village development; the folk development colleges.

AEE 315 Education Evaluation (30 hours)

The measurement of educational achievement in relation to the acquisition of practical skills and agricultural learning. Identifying performance objectives. Related statistical concepts underlying educational measurement: average, spread, correlations, significance tests. Item writing and analysis for written tests; the evaluation of projects and practicals. Use of formative evaluation to improve learning efficiency. Equivalence of test scores, the standardization of examination procedures. The evaluation of teachers.

AEE 316 Agricultural Administration (30 hours)

Basic principles for successful administration of agricultural and training institutions: administrative structures and productivity; project organization and office management in Tanzania; procedures for the management of finance, transport, stores, and equipment; preparing estimates; personnel management. The National Ethic; discipline; particular problems associated with administering agricultural enterprises.

AEE 317 Teaching Practice (variable hours)

Supervised teaching practice to be completed by each student in secondary schools or agricultural training institutions.

At Departmental discretion, students whose previous training and experience duplicates particular Option courses may be requested to replace these with equivalent hours of elective courses shared with the M.Sc. AEE course offerings (see below), or drawn from other Third Year Faculty courses (with the relevant Departmental approval).

Normally, this provision will apply to experienced teachers in good academic standing who might be exempted from part or all of AEE 305 and/or AEE 317. Elective courses will be allowed up to the number of hours the student has been exempted from, and will be examined in place of the exempted courses under the relevant AEE Paper. Elective offerings will depend upon staff availability and student needs, and will usually be a selection from:

AEE 318 Agricultural College Instruction (18 hrs). See AEE 418 syllabus.

AEE 319 Women and Development (18 hrs). See AEE 419 syllabus.

AEE 320 Technology, Employment & Rural Development (18 hrs). See Aee 407.

AEE 321 Project Appraisal & Evaluation. (30 hrs). See RE 302 syllabus. This course replaces AEE 315 for extension bias students.

AEE 322 Extension Programme Planning (36 hrs). See AEE 422 syllabus.

AEE 323 Extension Evaluation (18 hrs). See AEE 423 syllabus.

AEE 324 Village Dynamics (36 hrs). See AEE 424 syllabus.

AEE 325 Resource Assessment & Area Planning (36 hrs). See AEE 425 syllabus.

IV. Objectives of the M.Sc. Programme

(1) To prepare field officers for assignment involving the planning and management of agricultural projects and extension services.

(2) To prepare lectures and tutors for teaching posts in agricultural teaching training, and other Colleges.

(3) To train professional agricultural educators for planning and curriculum development responsibilities in the public service.

(4) To provide staff working in nonformal and adult education programmes with specialized agricultural training.

*C. EXTENSION MANAGEMENT OPTION (7.5 Credit Hours Required)

RE	407	Economic Development.....	36	18	1.5
RE	408	Economic Planning.....	36	18	1.5
AEE	420	Agricultural Policy Implementation.....	36	18	1.5
	*421	Comparative Extension Systems.....	10	10	.5
	422	Extension Programme Planning.....	20	20	1.5
	423	Extension Evaluation.....	18		.5
	*424	Village Dynamics.....	20	20	1.0
	*425	Resource Assessment & Area Planning.....	20	20	1.0

*Subject to staff availability

VII. M.Sc. Course Descriptions

A. CORE COURSES

AEE 401 Rural Sociology (Same as RE 414)

The individual, group and social system; socialization and social control. Traditional societies and peasant life. Population trends and changes in rural life during the colonial and post-independence period. The emerging rural community; rural institutions. Types of emergent farming systems. Theories of change; diffusion of innovations. Agencies of rural social and economic change. Education as a factor in social change; the relationship of education to social structure. Social action programmes and popular participation. Bureaucratic approaches to development. Emergent rural problems. Rural development as an integrated process (1.5 cr.).

AEE 402 Agricultural Extension (Same as RE 415)

Agricultural extension philosophy and scope of responsibilities. Organization and administration of agricultural extension systems; comparative extension systems. The communication profess. Extension methods; individual, group and mass approaches. Extension planning and evaluation. Training of extension staff. Farmer training. (1.0 cr.)

AEE 403 Survey Methods (Same as RE 403)

Methods for collecting socio-economic data problems of survey methodology in African rural contexts, types of data. Questionnaire formulation and interviewing. Measurement of typical farm and village level variables, assessing community needs. Choice of indicators and construction of practice adoption scales. Presenting farm level data graphically and statistically. Use and interpretation of farm survey results. Acquiring data for project appraisal, feasibility and baseline surveys, evaluation of programme impact. Secondary analysis of survey data. (1.0 cr.)

V. M. Sc. Degree Requirements:

The M.Sc. (Ext./Ed.) programme is designed to give specialized professional training in extension education, with a choice between two major emphases: 1) agricultural education, or, 2) extension management. Completion of the degree requires two years, the first devoted to intensive coursework and the second to completion of a Master's thesis.

Coursework will normally consist of 15 credit hours (in addition to the Faculty's common courses), divided equally between required core courses (part A below), and specialized courses related to one of the two major fields. Instruction is organized by terms, with course examinations during and at the end of each term. Students must also meet the general requirements for admission by the Faculty, and must satisfactorily complete the coursework portion before proceeding to thesis research on an approved topic.

Certain specialized third year option courses from the undergraduate curriculum may be used for supplemental instructions where this is directed. At Departmental discretion, course substitutions between major fields or from elsewhere in the Faculty may be arranged to suit a candidate's particular needs. Candidates may also be exempted from particular courses because of their previous background, but will in this case make up the necessary credit hours from optional courses or by supervised study.

VI. M.Sc. Programme Content.

Course No.:		Lect. Hrs.	Sem/Lab. Hrs.	Credit Hrs.
A. CORE COURSES (7.5 Credit Hours Required)				
AEE 401	Rural Sociology (RE 414).....	36	18	1.5
402	Agricultural Extension (RE 415).....	20	20	1.0
403	Survey Methods (RE 403).....	20	20	1.0
404	Adult and Nonformal Education.....	20	20	1.0
405	Agricultural Administration & Mngmnt....	36	18	1.5
406	Audio-Visual Methods.....	20	20	1.0
407	Technology, Employment & Development....	18		.5
408	Supervised Study (by arrangement)			
409	Thesis (M.Sc./Ph.D.)			
*B. AGRICULTURAL EDUCATION OPTION (7.5 Credit Hours Required)				
AEE 410	Principles of Agricultural Education....	30		1.0
411	Learning & Communications' Theory.....	18		.5
412	Vocational Education Practice.....	20	20	1.0
*413	Comparative Agricultural Curricula.....	10	10	.5
414	Educational Evaluation.....	20	20	1.0
415	Educational & Curriculum Planning.....	20	20	1.0
416	School Farm & Shop.....	40	40	2.0
*417	Communications' Workshop.....		30	.5
*418	Agricultural College Instruction.....	10	10	.5
*419	Women and Development.....	10	10	.5

AEE 404 Adult and Nonformal Education

The international experience with nonformal, adult, and community education. Differences in learning in and out of school, between children and adults. The role of schools in community-based learning. Youth programmes, village polytechnics and the transfer of rural technology. Educational needs of rural women, the role of women in development. Operation of adult education programmes and folk development colleges. Case studies of functional literacy and farmer training (1.0 cr.).

AEE 405 Agricultural Administration and Management (Same as RE 416)

Theory and techniques relevant to the administration of agricultural projects, extension services, and training institutions. The manager's role in the public services; factors associated with effectiveness, communication and decision-making processes, division of work, co-ordination and delegation, planning techniques. The planning-programming-budgeting sequence. Management information systems. Identifying programme needs; work-study methods; staff development. Use of control devices: financial, personnel, vehicle, equipment, and stock records. The disciplinary process. Local case studies in personnel and finance administration (1.5 cr.).

AEE 406 Audio-Visual Methods

Factors affecting choice of media, concept of visual literacy. Use of photography and sound recording in the field. Innovations in educational technology. Care of equipment; operating film projectors and public address systems. Planning audio-visual presentations. Preparing visuals, teaching units, and result demonstrations. Agricultural journalism. Direction of an audio-visual unit. Sources of materials (1.0 cr.)

AEE 407 Technology, Employment, and Rural Development

Employment implications of different development strategies. Nature of the school leaver problem in Africa. Case studies of youth projects and settlement schemes. Appropriate technology and its relevance to formal training. Types of available rural technology. The choice of technology. (.5 cr.)

AEE 408 Supervised Study

By arrangement to suit individual needs, credit variable.

AEE 409 Thesis (M.Sc./Ph.D.)

B. AGRICULTURAL EDUCATION OPTION COURSES

AEE 410 Principles of Agricultural Education

Role of practical learning in African general education. Curriculum objectives. Special requirements of agricultural training. History of

earlier programmes. Education for Self-Reliance Policy. Types of training at primary, school leaver, adult, secondary, and agricultural college levels. Supporting materials and the preparation of new lesson units. Organizational problems related to time-tabling, pupil morale, finances, the environment, the school farm, the workshop. Case studies/visits to effective programmes. (1.0 cr.)

AEE 411 Learning and Communications' Theory

Theories of how people learn and communication new ideas. Contemporary learning theories; skills and cognitive learning; identification of skills hierarchies. Practice adoption theory. Communications' systems and factors influencing the effectiveness of communication. (.5 cr.)

AEE 412 Vocational Education Practice

Current methods for agricultural teaching in Tanzanian secondary schools. The agricultural curriculum from Form I to Form IV. The process of curriculum renewal, course and lesson plans, time-tabling. Intensive practice with teaching methods suited to school agriculture. Textbooks and materials. Inspection and examinations. Organization of a School Department. Discipline. (1.0 cr.)

AEE 413 Comparative Agricultural Curricula

Evolution and alternative structures of curricula in African countries. Different approaches to agricultural education. Relationship of the syllabus to other curricular measures. Comparison of textbooks, lesson plans, and teaching materials. Case studies of relevant programmes. (.5 cr.)

AEE 414 Educational Evaluation

Psychology of educational measurement. Measuring educational achievement in practical skills and cognitive learning. Related statistical concepts. Identifying performance objectives. Formative and summative evaluation. The construction of tests, item analysis. Equivalence of test scores, standardizing the assessment of practicals. Evaluation of teachers and the adequacy of the overall learning system. (1.0 cr.)

AEE 415 Educational and Curriculum Planning

Role of specialized support in curriculum development. Conceptual hierarchies in various agricultural subject areas; programming of instruction; design of teaching units. Development of localized options to suit special environments. Use of demographic statistics for educational planning, educational planning techniques. Issues in planning rural education. (1.0 cr.)

AEE 416 School Farm and Shop

Management of school production and field units, I. Crops and horticulture, II. Animal husbandry, III. Buildings, equipment, and

the workshop. Supervision and planning of the school farm. Vacation arrangements, staffing. Operating a revolving fund, generating capital for improvements. selection of enterprises. The horticultural unit, irrigation. Health and nutrition of livestock, poultry, the piggery, goats, milk production. Maintenance of equipment, use of the workshop to support school instruction, self-help building techniques. (20 cr.)

AEE 417 Communications' Workshop

A flexible course for improving individual communication and teaching skills, including supervised public speaking, classroom presentations, conduct of seminars and meetings, preparation of Audio-visual materials. (.5 cr., optional)

AEE 418 Agricultural College Instruction

Organization and content of agricultural college programmes: role of the MATI in manpower development, the existing Certificate and Diploma curricula. Issues involved in College operation; evaluation and support systems. (.5 cr., optional)

AEE 419 Women and Development

Special educational needs of women in rural development. Data on the changing role of women in farm and village activities; use of family-based socialization for creating modern attitudes and skills. The problem of unequal access by girls to formal education. Possible corrective strategies. (.5 cr., optional)

C. EXTENSION MANAGEMENT OPTION COURSES

RE 407 Economic Development

Description under Rural Economy 407. (1.5 cr.)

RE 408 Economic Planning

Description under Rural Economy 408. (1.5 cr.)

AEE 420 Agricultural Policy Implementation

Basic principles of program design and management viewed in the context of the existing East African experience with implementation of major policies. Problems associated with land tenure, credit, irrigation, mechanization, input supply, livestock development, cooperatives, extension training, and land settlement would be reviewed. Criteria for the choice of organizational framework in programme implementation. Management of agricultural projects. Case studies of project development (1.5 cr.)

AEE 421 Comparative Extension Systems

Structure and philosophy of extension services in select countries. Data on the effectiveness of the administrative, training, and

informational components of extension work under varying institutional structures in Africa. Internal features of extension organization: leadership, staffing, funding, resources scope, linkages. Characteristic problems, possible solutions. (.5 cr., optional)

AEE 422 Extension Programme Planning

Types of agricultural planning, related information needs. Characteristics of district and regional extension units. Formulating an extension strategy. The requirements for programme planning: situation analysis, defining objectives, programme organization, selecting methods, assessing resources. Techniques for programme design, the plan of work, activity scheduling, coordination and supervision, field campaigns. Administrative feedback; case studies (1.0 cr.)

AEE 423 Extension Evaluation

The design of evaluation research. Types of information needed to ex-ante and ex-post analysis relevant to extension planning and implementation. Use of files and official data; special problems of attitude measurement; KAP surveys. Measuring community needs and organizational effectiveness. (.5 cr.)

AEE 424 Village Dynamics

Review of sociological theory relevant for understanding the dynamics of group organization and village leadership in an African context. Existing leadership structures within Tanzanian villages, the organization of village activities and projects. Working through the village committee, the role of the village management technician and Ward officials. Opinion leadership and the communications' network. Stimulation of group innovation. Field Visits. (1.0 cr., optional)

AEE 425 Resource Assessment and Area Planning

Approaches to spatial planning, including central place theory and location economics. Regional and District planning procedures; planning constraints. Assessing soil and water resource potential on a District, Regional, and Zonal basis. Utility of remote sensing technology under local conditions. Cost effectiveness of systems of land unit and village planning. Criteria for the choice of crops and enterprises in given areas. Case studies of decentralized planning and village layout. (1.0 cr., optional)

ANNEX C

CCEA INFORMATION

1. Background Information
2. Fact Sheet
3. "The New Centre for Continuing Education in Agriculture at Morogoro; A Progress Report" By B. Sensenig
4. Newspaper Report

BACKGROUND INFORMATION ON THE CENTRE FOR CONTINUING EDUCATION IN AGRICULTURE, FACULTY OF AGRICULTURE, FORESTRY AND VETERINARY SCIENCE

1. INTRODUCTION

The need for high and middle level agriculture manpower to continue their education after formal training is well known. The ability of the Faculty of Agriculture, Forestry and Veterinary Science to assist in meeting this need has been limited by the lack of staff and facilities for the organization of short courses, conferences, workshops, seminars etc. With this in mind, a plan evolved to establish a Centre for Continuing Education in Agriculture (CCEA) on the campus of Morogoro. Planning for the Centre began as far back as 1975. In 1977, the Ministry of Agriculture and USAID agreed to fund the First Phase of the CCEA.

2. FUNCTIONS OF THE CCEA

The CCEA will be the University's agricultural outreach facility. It will assemble information on agricultural research results and new technology; package it into presentation modules; desseminate it to field agriculturists through in-service training courses; and prepare and distribute village-oriented training and demonstration materials. Its main purpose will be to create a context where the Faculty's specialized expertise in the various scientific fields can be tapped to upgrade the skills, outlook, and knowledge of existing service personnel already working at village level. With only a small core of full-time permanent staff, the CCEA will rely upon the rest of the Faculty, the nearby IDM, the main Campus, the Ministry of Agriculture, parastatals, and limited expatriate consultants.

3. RELATIONSHIP WITH USAID

It is appropriate to elaborate on the relationship historically and at present between the Centre and USAID. The idea of the CCEA arose independently of any single funding agency. It would have been funded as part of the Manpower Training Project administered by West Virginia University and well known to many. For internal reasons, however, USAID decided to channel support for the CCEA development into a separate project, designated the Agricultural Education and Extension Project.

Funding for the buildings (totalling 9 million shillings) has been through what is called "counterpart funds" which are generated by sale of US-supplied foodstuffs throughout the country. The proceeds from such sales contribute to a special development fund from which projects are jointly created between various ministries (particularly Kilimo and directly Treasury), and USAID. Thus, the physical structures have been paid for in shillings and only indirectly in dollars.

Recurrent funding of special activities is not included. Thus programmes of the Centre must have funding from their inception to completion on an event by event basis and/or as a vote from the University

and Kilimo. USAID support for the Agricultural Education and Extension Project is due to expire on September 30, 1983.

4. RELATIONSHIP WITH THE DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

The Department of Agricultural Education and Extension (DAEE) will initially provide the established positions and a large part of the recurrent budget for the new CCEA. The DAEE has done the initial planning of the CCEA on the Faculty's behalf; it will be housed as an integral part of the Centre; the Audio-Visual services will be common to both units" and roughly half the DAEE positions will be joint appointments with the CCEA. Since the DAEE is already offering or developing courses at the degree level in audio-visual methods, village development, adult education and so forth, it would be neither economic nor rational to develop the same specialities within the CCEA. For these reasons, a close coordination of the DAEE and CCEA programmes is mandatory. The CCEA will rely heavily upon DAEE staff to develop and present specialized short course training in the various DAEE substantive areas, and to evaluate the effectiveness of its efforts in the field; just as the DAEE will need the CCEA to conduct various short-term workshops and seminars for existing field extension and training staff.

Thus, it can be seen that the Faculty is using the DAEE as an organizational base for planning and development of the CCEA. Once the CCEA is fully operational, its activities will become a separate part of the Faculty's overall programme, but for much of the duration of the Project, the DAEE will remain as the parent academic unit assisting with establishment of the Centre. In this way, the DAEE will serve as the intellectual base for the CCEA's programmes while the CCEA will serve as the outreach arm for the DAEE's programmes. To achieve this, the University requested USAID to develop the CCEA and DAEE as joint components of the same project.

As part of the effort to strengthen the DAEE and assist the Faculty in initiating the work of the Centre, USAID has funded a four year project which includes the following:

a) Technical assistance in the form of three experts (contract to Utah State University).
b) Scholarships for Faculty staff development (8 Ph.Ds and 4 M.Scs.).
c) Vehicles.
d) Senior staff houses (3).
e) Audio-visual and other equipment and supplies.
f) Short-term consultants.

5. THE CCEA AND RURAL DEVELOPMENT

It is desirable for the CCEA to become a national clearing house for rural survey studies. With a mini-computer available for data storage and analysis, officers and researchers can expect to gain access to a wide range of past rural and village survey efforts, summarize the results, compare results between points in time and geographic areas. This will be

possible because the CCEA will have the flexibility to work between disciplines and with a number of issues which do not easily fit into a single department's teaching or res. rch brief.

6. FACILITIES

The first phase of the CCEA is now nearing completion. It will consist of a large conference room, audio-visual production facilities, classrooms, seminar rooms, offices and a hostel block. The hostel is now complete and upwards of 24 persons can occupy the rooms. The purchase of furnishings is now underway. Also, money (4 million shillings) has already been allocated for Phase II of the Center. This will consist of a seminar room, a second 12 room wing on the hostel complex, dining facilities, a lounge and a warden's office. It is expected that preliminary work on the final architectural renderings will begin as soon as approval is given.

7. FINAL STATUS OF THE CCEA

The CCEA will eventually be a new division of the Faculty. The nature of its services--organizing meetings, short courses, conferences, audio-visual services etc.--automatically means that the staff cannot take a narrow view or be ultimately loyal to any one Department. It should have a separate vote which is not dependent upon a parent department. As indicated before, this will come about when the Centre becomes fully operational. It is envisaged that at least 18 in-service courses a year will be offered for agricultural trainers and extension workers. The Centre will be headed by a director who will be assisted by a deputy director (the latter official is already in place--Prof. C. H. Brewer).

8. ACTIVITIES TO DATE AND PROJECTED

The Utah State University Team Leader (Prof. D. Giltrow) arrived in the country and started work on January 17, 1980. He was followed by the Deputy Director of the CCEA (Prof. C. H. Brewer) who started work on November 17, 1980. Because of other activities connected with the development of the Centre's facilities, there was little time left to prepare a plan of work and calendar of activities for the Centre. This work is being done now.

However, the Centre personnel, that is Prof. Giltrow and Prof. Brewer, participated in a number of activities organized by various organizations which asked for and got the Centre's input in planning and actual conduct of the same. The following is a list of conferences/ seminars in which the Centre personnel participated in one way or another in planning and conducting:

1. Farming Systems and Farming Systems Research Conference organized by the Agricultural Economics Society of Tanzania and sponsored by USAID, held in Arusha, April 14 to April 16. 185 persons attended. The Centre contributed at all stages of planning and conducting as well as visual-aids support.

2. A Workshop was organized by Uyole Agricultural Centre in which the CCEA and the DAEE contributed in its planning and conducting. The workshop Theme was "How to Improve Agricultural Extension" and was attended by RADOs and DADOs from Iringa, Mbeya, Rukwa and Ruvuma regions and personnel from Uyole Centre.

3. A seminar on "Uanzishaji na Uendelezaji wa Miradi ya ya Kuzalisha Mali Kijamaa" was organized by the DAEE for farmers from participating villages in the Faculty's Village Development Project. The Centre personnel participated in preparing one paper for discussion and site scouting for the seminar.

Several conferences/seminars are already projected. These will be included in the Centres Programme for the last quarter of 1981, which is under preparation. The programme includes:

1. Training of Monitoring, Evaluation and Data Processing personnel from the Prime Minister's Office, planned for July 1981. The Department of Rural Economy will provide the expertise.

2. A Tractor Operator Course planned for August or September 1981. The Department of Agricultural Engineering and Land Planning will provide the expertise. The 6-10 week course will be conducted mostly at Morogoro but one week will be spent at the Njombe Seed Farm.

3. An International Conference on Energy planned for November, 1981. Sponsored by USAID, various Ministries and University departments.

4. Refresher course on "How to use Workshop Equipment" for secondary school agricultural teachers, planned December, 1981. Sponsored by the Ministry of National Education.

9. FORMULATION OF A STEERING COMMITTEE

To facilitate the functioning of the Centre, it is necessary to form a Steering Committee comprised of representatives of the University and the major potential users. The steering committee has the following members;

1. The Dean, Faculty of Agriculture, Forestry and Veterinary Science - Chairman.

2. The Centre Director - Secretary.

3. One representative from the Agriculture Division of the Faculty.

4. One representative from the Veterinary Division of the Faculty.

5. One representative from the Forestry Division of the Faculty.

6. Principal Secretary - Kilimo.

7. Principal Secretary - Mifugo.

8. Principal Secretary - Mali-Asili.

9. Principal Secretary - PMO (Attention Mr. E. N. Sanga).

10. The Head, DAEE (Ex-Oficio).

11. The Centre Deputy Director (Ex Officio).

12. Coopted members from Crop Authorities, Livestock Authority, RIDEPs etc. to attend whenever there is need.

The Committee will meet a minimum of three times a year. The first meeting will be held at Morogoro in the Dean's Office on August 21, 1981. The following are the terms of reference of the Committee:

1. Establish the general policy guidelines for the Centre's programme.

2. Comment upon and approve the outline of each year's proposed programme and budget.

3. Inform the Faculty of the CCEA users' needs for short courses, workshops, training meetings, etc.

4. Inform the CCEA users about the Faculty's current instructional resources and facilities.

5. Assist the CCEA Director to avoid duplication of effort where other short courses, workshops, conferences, might be offered by other institutions, ministries, etc.

6. Assist the CCEA Director in obtaining funds from the Government and other donors for underwriting various CCEA activities.

7. Assist the Director in resolving scheduling difficulties.

8. Advise the Director of any pressing training needs appropriate for the CCEA to undertake at short notice.

9. Advise, inform and suggest any other policy related matters which would assist the Centre to carry out its role as an outreach arm of the Faculty.

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FACT SHEET

Name: Centre for Continuing Education
Faculty of Agriculture, Forestry and Veterinary Science
University of Dar es Salaam
Morogoro
Phone 2511; Telex 55308 UNIVMOG

Personnel: Dr. K. J. B. Keregero, Acting Director (and Head, Dept. Agric. Education and Extension)

Prof. Courtney Brewer, Deputy Director (USAID contractor)

Mr. B. Bakobi, Administrative Officer

Audiovisual Unit:

Prof. David Giltrow, In-charge (USAID contractor)

Mr. A. Madalla, Lecturer in Audiovisual Methods

Mr. S. Amandi, Audiovisual Technician/Equipment

Mr. K. g. J. Mwanaga, Audiovisual Technician/Photography

Purpose: To serve as the outreach arm of the faculty by providing facilities and services for short courses, refresher courses, seminars, workshops, meetings, and extension activities. The Audiovisual Unit provides services to the Faculty, Center users, and the community. It will also produce pilot training and teaching materials for other institutions with similar interests as the faculty, e.g. Kilimo, Mifugo, Maliasili.

Facilities: Conference Hall for groups 20-100. Audiovisual classroom for up to 30. Small meeting room for up to 15. Hostel for up to 24. Extensive audiovisual services and production facilities. Future expansion: Plans have been prepared for expansion of hostel facilities for up to 64 with self-contained kitchen and dining room, lounge, laundry, an additional floor will be added to office block to provide additional four classroom/meetingrooms. Expected completion: 1985.

First operation: Centre activities commenced prior to the physical facilities being completed in September, 1982. Programmes began in March, 1981. The first course held in the new building was in November, 1982. This was a Forestry Research Methods Course for forestry research officers from 8 Eastern and Central African nations sponsored by the Faculty's Forestry Division and the Canadian IDRC. Prior to that, the CCE sponsored events were held in existing Faculty facilities on a temporary basis.

Typical users and types of activities: Parastatals, ministries, international agencies, and Faculty departments have been users of the CCE services. CCM and University of Dar es Salaam meetings have been held at the CCE. Courses for agricultural secondary school teachers, extension officers, Regional Livestock Development Officers, forestry researchers, state farm managers, MATI instructors, and village officials have been conducted. An informal approach with practical experiences and active participation of the participants is encouraged. Emphasis is placed on upgrading extension skills and increased technical knowledge. Middle and Higher Level manpower form the majority of participants. Two national meetings have had active CCE participation and planning: Conference on Farming Systems and Farming Systems Research (April 1981) and the just completed Workshop on Resource Efficient Farming Methods in Tanzania (May, 1983). Staffing of activities is usually a combination of Faculty staff and sponsors senior staff. Outside consultants are also used.

Policy development: The Dean of the Faculty is responsible for the overall CCE management and operation. A National Steering Committee composed of representatives from each of the Faculty Divisions, the PMD, and Ministries of Agriculture, Livestock Production, National Resources, and National Education provides overall direction and suggestions on programming. This committee will be meeting shortly to review the first year in the permanent facilities.

Capital cost and recurrent expenditures: The facilities, including the parent department (Agricultural Education and Extension) and hostel buildings, cost approximately 4.5 million shillings and was provided through the special development fund of the Ministry of Agriculture. Audiovisual equipment was provided by USAID. Other than the latter, no direct foreign exchange was used. The cost of the CCE activities are borne by the users and the Centre is expected to be self-supporting with only some indirect costs met by the University. Present user rate for the current year are expected to be about 80% occupancy.

Benefits to the nation: In his speech marking the 10th anniversary of the founding of the University of Dar es Salaam, President Nyerere as Chancellor challenge the University to become more involved with serving the nation through practical activities and contact with the people. The Centre for Continuing Education of the Faculty is designed to provide practical and useful learning to those who are serving in the field, in the classrooms of remote schools and institutes, and requires intellectually ? from the increasing flow of new knowledge. By periodic return to the classroom, serving officers can gain special knowledge and reflect on thei professional work. However, the CCE attempts to provide relevant learning using methods more appropriate for mature, goal-oriented participants. Through a combination of practical an theoretical ingredients, each workshop, course, or seminar may give a new viewpoint and renewed interested to the participants in their careers. This will, ir

turn be reflected in better and more productive work from the participa
attending the CCE courses at the faculty.

Specific information: A list of past and planned CCE activities can be provided on request together with any other information not provided above.

THE NEW CENTRE FOR CONTINUING EDUCATION IN AGRICULTURE AT MOROGORO: A PROGRESS REPORT

by

Barton Sensenig 3rd
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Department of Agricultural Education and Extension
University of Dar Es Salaam

Paper presented at the National Council for Agricultural Education
Tengeru, February 24-26, 1982

PURPOSE

This paper is a progress report on the University of Dar Es Salaam's new Centre for Continuing Education in Agriculture (CCEA) at Morogoro. The Centre is the University's outreach facility designed to strengthen linkeages between the University and the villages by providing in-service training to middle and upper level agricultural personnel in agricultural teaching, extension, management, and technical agricultural skills. These trainees will, in turn, train and direct lower level extension personnel to work directly in the villages. The CCEA maintains linkeages between the University and the various agricultural sector ministries, research stations, parastatals, training institutions, and development projects in order to determine training needs, obtain the technical information needed for developing training curricula and modules, and to provide its training services.

The term "agriculture" is taken in its broadest sense to include all activities under the ministries of Agriculture, Livestock Development, Natural Resources, and Education as well as the Ujamaa and Cooperatives Division of the Prime Minister's Office and related parastatals plus all disciplines within the Faculty of Agriculture, Forestry and Veterinary Science. The CCEA is intended to cater to the needs of all agricultural service organizations for short courses, seminars, workshops, conferences and audio-visual production.

The Centre assembles information on agricultural research results and new technology; packages it into presentation modules; disseminates it to field agriculturalists through in-service training courses; and prepares and distributes village-oriented training and demonstration materials. Thus, it fulfills a key role in bringing the high-level expertise of the University to bear directly on concrete development problems in the villages.

BACKGROUND

The need for rapidly expanded agricultural training and retraining has been long recognized. Both the second and third Five Year Development Plans have placed highest priority on agriculture with special emphasis on agricultural training.

Two quantitative studies of agricultural manpower have highlighted these needs.[1] As shown in Table I, below, less than half (44%) the demand for educated agricultural personnel is currently being met, and the situation is not expected to improve in the next ten years. The lack is most severe for

Table I

ESTIMATED SUPPLY AND DEMAND OF AGRICULTURAL MANPOWER IN 1981 AND 1991 BY EDUCATIONAL LEVEL[2]

EDUCATIONAL LEVEL	1981			1991		
	DEMAND	SUPPLY	%	DEMAND	SUPPLY	%
Certificate	8833	3079	35	16367	4767	29
Diploma	3354	2107	63	6137	4392	72
B.Sc. & Higher	1704	945	55	2869	1618	56
TOTAL	13891	6131	44	15363	10775	43

the lowest educational level, certificate holders, where the largest numbers are demanded. Yeaman et al (1972) noted that although Field Assistants should ideally be trained to the certificate level, most had only a tenth grade education with no formal agricultural training at all.

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[1]Yeaman, Schwencke and Wamunza. Agricultural Manpower Development. Ministry of Agriculture, 1972. and U.S. Agency for International Development. Tanzania Agricultural Sector Manpower Study. USAID, 1980.

[2]USAID op cit., Vol. I, p. V-4.

The task of training and upgrading these lower level agriculturalists is the task of the Ministry of Agriculture Training Institutes (MATIs) and Ministry of Livestock Development Livestock Training Institutes (LITIs). The number of these institutes has expanded rapidly from two in 1967 to twelve today. Ideally, all MATI and LITI instructors should have a B.Sc. degree. In fact, however, many are only Certificate or Diploma holders who have only recently graduated from a MATI themselves. There is, thus, a major need for retraining and upgrading of lower level agricultural man power. The Centre for Continuing Education in Agriculture is designed to help fulfill this need through in-service training of trainers who will, in turn, train other personnel.

THE PLAN

The ability of the Faculty of Agriculture, Forestry and Veterinary Science to assist with in-service training has been limited by lack of staff and facilities for the organization of short courses, conferences, workshops, and seminars. With this in mind, a plan evolved to establish the Centre for Continuing Education in Agriculture. Planning for the Centre began as far back as 1975. In 1977 the Ministry of Agriculture and USAID agreed to fund the first phase.[1] Phase I is now operational and planning is underway for Phase II.

Functions

The role of the Centre for Continuing Education in Agriculture is outlined in Figure 1. It is the outreach facility of the University Faculty,

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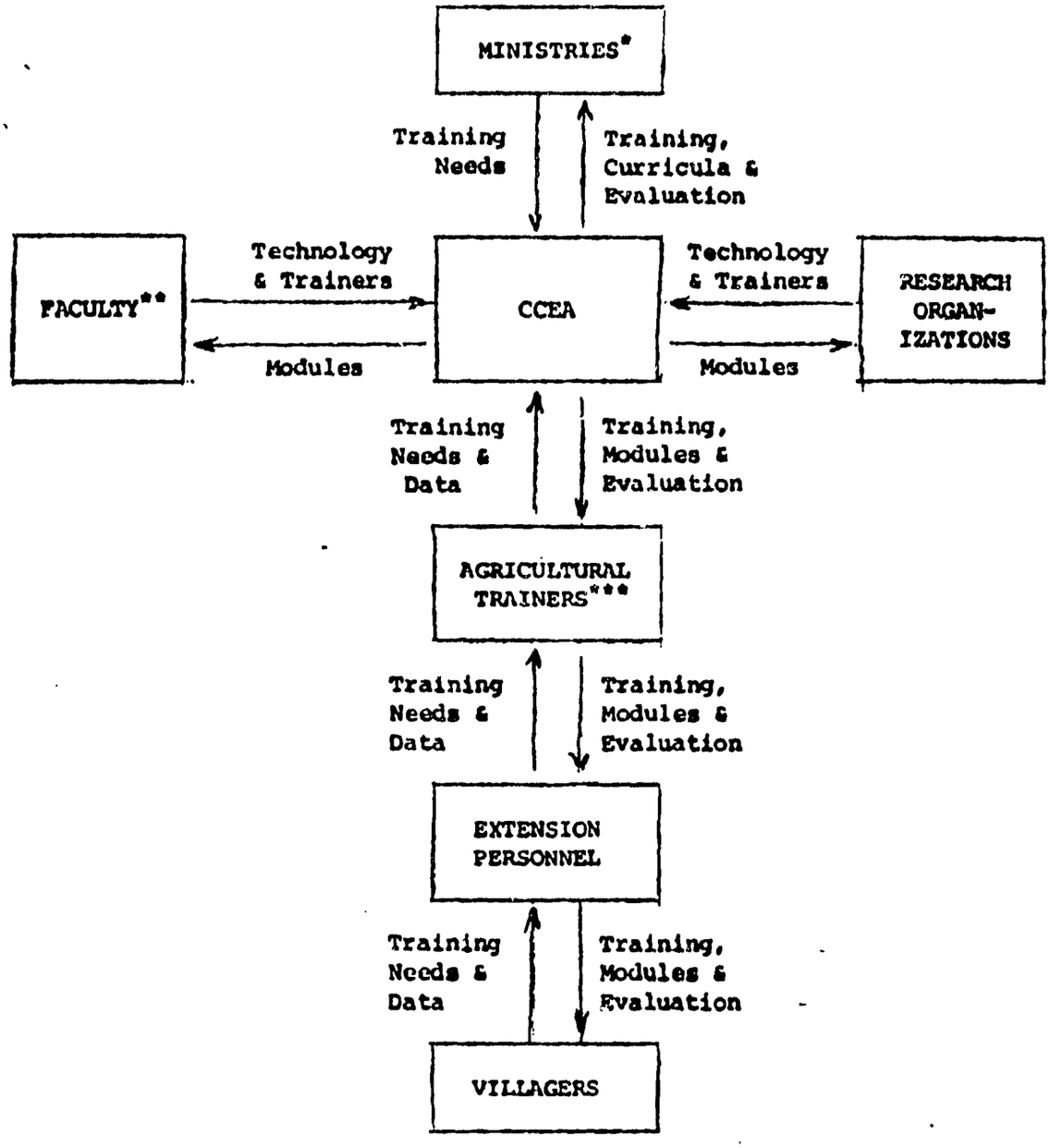
[1]USAID. Tanzania Agricultural Education and Extension Project. Project paper No. 621-0135, USAID Dar Es Salaam, 1978.

Figure 1

THE ROLE OF THE CENTRE FOR CONTINUING EDUCATION IN AGRICULTURE



*Ministries of Agriculture, Livestock Development, Natural Resources, Education & the Ujamaa & Cooperatives Division of the Prime Minister's Office.

**University of Dar Es Salaam Faculty of Agriculture, Forestry & Veterinary Science.

***MATIs, LITIs, RIDEPs, Secondary Agriculture Teachers, Parastatals, Development Projects, etc.

maintaining linkages with the ministries, research organizations, and agricultural trainers who in turn train extension personnel to service villagers. The Centre works with these various organizations to produce (1) training programs, (2) training modules, and (3) evaluation of training impact. It requests from these organizations (1) information on training needs, (2) technical information such as research results and new technologies, (3)

Figure 2

INPUTS AND OUTPUTS OF THE
CENTRE FOR CONTINUING EDUCATION IN AGRICULTURE

INPUTS	OUTPUTS
Training Needs Needs assessment and training requests.	**Training** Short courses, conferences, workshops and seminars.
Technology Research results and new production techniques.	**Modules** Curricula or technical packages simplified and organized into lesson plans including audio-visual materials.
Data Pre & post questionnaire and test data on training impact.	**Evaluation** Analysis of training effectiveness.
Trainers Specialists on loan to teach short courses.	

feedback data on the effectiveness of training, and (4) the loan of personnel to serve as trainers in its short courses (Figure 2).

The major function of the CCEA is the provision of short-term, in-service training to agricultural trainers and other middle and upper level agriculturalists. It conducts short courses and workshops (1-3 weeks) on such topics as new technical practices (e.g. new fertilizers or ploughing systems) or the methodology of extension (e.g. how to organize village meetings, explain new techniques, or interview farmers).

The Centre also conducts slightly longer refresher courses (1-3 months) to train middle and upper level agricultural personnel in extension, management, training, planning, or technical specialties. In addition to technical courses in agricultural sciences, these include courses such as extension planning and management, agricultural project management, regional resource planning, agricultural education materials, MATI/LITI curriculum development, and communication techniques.

The CCEA coordinates with the Faculty and other research organizations to pull together research results and new techniques of production into packages of recommended practices and then to organize and simplify these packages into training modules complete with behavioral objectives, lesson plans, provisions for feedback, and integrated audio-visual materials. Modules are produced for (1) the Centre's own training programs, (2) other "Training of Trainers" (e.g. MATI courses), and (3) village-level extension work.

The final function of the CCEA is evaluation of training impact. The CCEA collects pre- and post- training session data from both tests and questionnaires; performs the necessary data processing, analyzes and interprets the results and feeds back information on training program effectiveness to the cooperating organizations.

Facilities

The facilities of the Centre for Continuing Education in Agriculture are outlined in Figure 3. The Centre is housed in a newly completed building complex totalling roughly 1200 square metres of space, with an additional 650 m^2 to be added in Phase II.

The highlight of the new buildings is the Conference Centre featuring a large (175 m^2) meeting hall or council chamber which can be either used

for large assemblies or partitioned to handle several small groups simultaneously. Just outside this meeting hall is the reception area with a registration desk and coffee break facilities.

The Audio-Visual Unit occupies the other half of this building. It features a large materials production laboratory that doubles as a classroom. Other facilities include a self-learning laboratory where students can listen to tapes; a dark room and film screening room; and an audio-visual workshop for equipment repair. The Unit has been furnished with an extensive variety of audio-visual equipment.

There are four main functions of the Audio-Visual Unit: (1) It serves as a training laboratory in which participants can learn to produce instructional media; (2) It functions as a media-production unit for the CCEA's training module production activity; (3) It also services the Department of Agricultural Education and Extension in their production of

Figure 3

FACILITIES OF THE
CENTRE FOR CONTINUING EDUCATION IN AGRICULTURE

PHASE I FACILITIES

Conference Centre
Meeting Hall, Reception Area, Offices.

Audio-Visual Unit
Materials production lab, Self-learning lab, Dark room, Film screening room, A-V workshop.

CCEA Offices
Offices, Mimeographing centre, Seminar rooms.

Hostel
12 double rooms.

Transportation
Landrover.

Computer Centre
PDP 11-V23

Department of Agricultural Education and Extension
Offices, Typing pool, Seminar room, Classroom.

PHASE II FACILITIES

Hostel
20 additional double rooms, Dining Hall, Kitchen, Laundry, Lounge, Office.

Classrooms
Additional classrooms and offices.

extension materials; (4) Finally, it also provides audio visual services for the Faculty of Agriculture, Forestry and Veterinary Sciences as a whole.

Nearby are the offices of the CCEA directorate where training programs are planned and administered. In addition to space for the director, assistant director and secretaries, this area includes seminar rooms and a mimeographing centre for producing course materials.

The first wing of the hostel building, which has been completed in Phase I, stands separately. It contains twelve double rooms, each furnished with beds and built-in desks and closets. The Centre, thus, currently has a maximum capacity of 24 participants. For comfort during longer courses or for high level participants, however, it is recommended that only one person be housed in each room.

In Phase II the remainder of the hostel will be constructed, providing an additional 20 double rooms for a total maximum capacity of 64 participants. A dining hall, kitchen, laundry, lounge, and office will also be added to the hostel in phase II, making its operation independent of the university's guest wing and other facilities. In addition, phase II construction will include additional classrooms and offices.

The Centre has its own landrover, and has already arranged to use the Faculty's bus when it was needed for a study tour throughout Tanzania.

The new CCEA buildings also house the Faculty's computer centre which consists of a PDP 11-V23 with 128 K of core storage and two floppy disk drives. The Centre, thus, has a good facility for pursuing its analytical evaluation objective.

The Department of Agricultural Education and Extension is also housed in the new CCEA buildings. There is an extremely close relationship between the CCEA and DAEE. The director and assistant director of the Centre have

joint appointments with the Department of Agricultural Education and Extension (DAEE). Currently the Centre is administered through the Department. Although it will eventually become independent this close relationship will be maintained.

PROGRESS

Having outlined the plan for the Centre for Continuing Education in Agriculture, let us now review the progress to date. The Centre is currently in a period of "take off" in which programs are begining and progress is becoming rapid. Construction is essentially completed, two training sessions have been held, work has begun on modules, computer usage has begun, and linkeages are being expanded with various organizations around the country.

Construction

Phase I construction of the CCEA building complex is essentially completed and ready for occupancy. The contractor is currently completing the walkways on the outside of the buildings. The only missing element is glass for the windows. A plan is being considered under which the windows may be temporarily covered with wire mesh to permit immediate occupancy. In any case, the Centre's work is already underway.

Architectural details for Phase II construction are currently being finalized, so that construction can continue. As noted above, phase II will consist primarily of additions to the hostel. It will, however, also entail the addition of a first floor above the current offices to provide additional classroom and office space.

Training

Two training courses have already been held and several others are scheduled for the near future. The two sessions already completed are a course for Farm Managers held November 2 through December 12, 1981 and a course on Agromechanization for Secondary School teachers held December 14, 1981 through January 15, 1982.

The workshop for Farm Managers of tractor-mechanized field operations had four objectives: (1) To train farm managers with limited expertise on large-scale farm mechanization and management; (2) to assemble farm managers with different training to exchange knowledge and experience, (3) to visit large-scale mechanized farms; and (4) to learn the problems and solutions developed on these large scale farms.

The six-week course covered tractor performance; cultivation and other machinery; management/conservation/irrigation & drainage/structures; visits to large-scale farms & estates; and case studies & review. Participants were field managers of various large-scale mechanized farms such as NAFCO, Tanzania Sisal Corporation, and the Tea, Coffee, Cotton authorities, etc.

On the whole, the course was very successful. The participants, being already experienced, were especially pleased with the practical emphasis in the field -- calibrating machinery and studying plowing techniques. The highlight of the course was the tour of large scale mechanized farms which took participants to Iringa, Mbeya and Arusha. They really appreciated getting first hand information from farm managers actually dealing with problems similar to their own. The participants expressed a desire to return for another such session in the future.

The only problem encountered with respect to this training session was that participants arrived late and thus the training had to be condensed

into a shorter period than originally planned. We hope that in the future the cooperating agencies will see to it that their participants arrive on time so that training can proceed as planned.

The second course which has been held was "A Short Course on Agromechanization for Secondary School Agricultural Teachers". It was a four week course with seven objectives which included teaching: (1) farm power and machinery; (2) workshop care & safety precautions; (3) principles of farm tractors; (4) farm structures; (5) visiting schools & plants; (6) surveying principles; and (7) exchanging ideas. It was attended by 21 teachers and one ministry official. These teachers came from schools already equipped with farm machinery so that they could immediately put their education to use.

The course was quite successful. Participants displayed a keen interest and active participation. In an evaluation survey they rated all instructors between "good" and "very good". More importantly, pre and pose-test questionnaires indicate that the participants improved significantly in their levels of competency on the substantive items taught. Before the course the majority rated themselves "below average" on understanding and teaching the various items solicited, but after the course they rated themselves "good" to "very good". Participants commented that they would have liked the course to continue for three months rather than the one month allotted.

In addition to these courses already held, a number of other courses have been scheduled and planned. Among those coming up soon are another short course on Agromechanics for NAFCO, a course on Cowpea Production for Bwana Shambas, a short course for MATI tutors, and a series of three conventions and workshops on Nutrition which will span the time from now until June 1983.

The Centre is, thus, devoting considerable time at present to establishing linkeages with potential users and scheduling and planning courses with them. Today's presentation is, indeed, another step in that direction.

Modules

The CCEA has also been developing linkeages with research organizations and village-level projects in search of information on (1) recommended technical packages of practices and (2) needs assessment data with respect to the kinds of training modules needed. Recent field trips have included (1) the TIRDEP project in Tanga, (2) the National Coordinating Council for Maize Research at Ilonga, and (3) the Training for Rural Development Project (TRDP) in Irringa. In addition, Centre staff are in constant contact with the various departments of the Faculty of Agriculture, Forestry and Veterinary Science and are participating in their inter-departmental Farming Systems Research project.

A specific Cowpea production module has been produced under contract with the Centre and is to be given its first test in the very near future.

The Centre is currently compiling a computerized bibliography of training modules from around the world which can be utilized as the basis for developing locally appropriate modules. Already over 500 such modules have been collected together. The list is being stenciled and will be available upon request to any interested organization. We would also appreciate your cooperation in sending us references for any particularly good training modules that you may know of in your particular specialization.

Audio-Visual Unit

The audio-visual unit has long been functioning to support the Department of Agricultural Education and Extension and more broadly the Faculty as a whole. Recently its capability has been greatly expanded by the receipt of a large variety of new equipment. It stands ready, thus, to develop materials for any new short courses or modules undertaken.

Evaluation

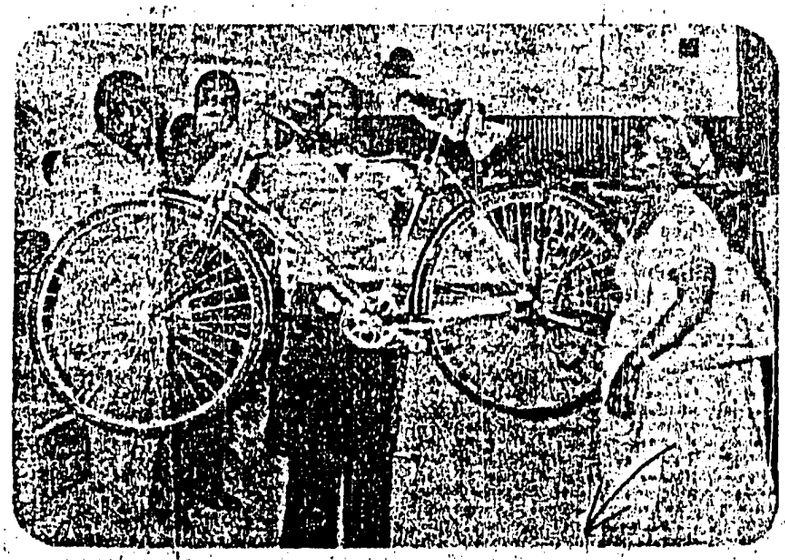
The training evaluation activities of the Centre have begun with evaluation of their own short courses. These evaluations involved the pre- and post- training questionnaires reported above.

Currently the Centre staff are familiarizing themselves with the newly arrived PDP 11 computer and preparing procedures for further evaluations work.

COLLABORATION

As indicated above, one of the major activities of the Centre for Continuing Education in Agriculture to date has been the establishment of linkeages with other organizations. That is the major purpose of our presentation today. We are interested in collaborating together with those of you who see a need for our services to enhance agricultural education in Tanzania.

If you would be interested in obtaining details of how we could work together to put on a conference, workshop, seminar or short course, please contact me after the meeting or write me a note with your name and address. Or, you can write to The Director, Centre for Continuing Education, Chuo Kikuu Sub-Post Office, Morogoro. We will be pleased to correspond with you and send you a brochure with the planning details.



HOLDING a bicycle aloft is Ndugu Richard Marko, the best worker of the Dar es Salaam-based National Bicycle Company (NABICO). The bicycle, donated by NABICO, was presented to Ndugu Marko by the Dar es Salaam Regional Party Chairman, Ndugu Ramadhani Nyamka (in glasses left). On Ndugu Nyamka's left is the Dar es Salaam Regional JUWATA Secretary, Ndugu Mikidadi Kassanda. (Picture by Staff Photographer Jonas Marios).

ON COCONUT DEVELOPMENT

600 to be trained

By Staff Reporter

THE National Coconut Development Programme (NCDP) has plans to train 600 extension officers in 31 districts of the country's coconut growing areas before 1986 when the programme's second phase is expected to take off, it has been learnt in Dar es Salaam.

According to two officials of the NCDP Extension and Field Services Section (EFSS), the programme would be conducted in the form of short training seminars, and would benefit a cadre that would in turn train other extension officers as well as the peasants.

The officials, H. Barkey and N.A.S. Temu told the *Daily News* that emphasis would be on personnel who could easily comprehend the crop's technical package, and who would use their knowledge to train other cadres as it has been directed in the new national agricultural policy.

It is expected that the training programme will enable the extension workers to understand the significance of coconut production in small holder farms, to enable them advise on improved husbandry standards and instill in them an ability to organise peasants to adopt the technical package. It is also hopped that the participants will be able to learn problems of peasants and to find solutions for them.

The officials said five such seminars with an intake of between 20 and 25 people will have to be organised each year, if all the extension workers in the coconut growing areas, were to be trained.

Presently, they said, the second of the seminar series for this year was on progress at the centre for continuing studies of the Faculty of Agriculture at Morogoro. The first seminar was held in March at the centre, but unlike the first, this one was more practically oriented, they pointed out.

Ndugu Temu explained that apart from the seminar addressing itself more on the general husbandry of the crop, the participants were this time discussing on diseases and pests which were peculiar to the participants areas.

Responding to a question, Ndugu Temu said local traps and baits would have to depended upon because chemicals for spraying, bats and birds were costly.

Bats and Birds are a problem in certain coconut groves and they cause a lot of damage to the crop through nesting on the wings, thus reducing the photosynthesis area of the plant. Heavy nesting mostly results into death of the plant.

The present seminar started at the faculty on May 2 and will be closed on the May 15 by the Director of Agriculture in the Zanzibar Government, Ndugu Seif Rashid.

Best Available Document

DAILY NEWS, Friday, May 13, 1983

Best Available Document

Goal-oriented centre

EDUCATION is a vital component of a nation's development efforts. In this feature Staff Writer EMMANUEL BULUGU reports on activities of the Morogoro-based Centre for Continuing Education (CCE). The Centre provides practical and useful farming knowledge to peasants to enable them improve their farming techniques.

WHEN inaugurating the University of Dar es Salaam in 1970, President Nyerere, as its Chancellor, called upon this institution of higher learning to aim at service to a developing socialist Tanzania.

Later, in his speech marking the university's 10th anniversary, Mwalimu urged the institution to become more involved with serving the nation through practical activities and contact with the people.

In this speech, Mwalimu was not pointing an accusing finger at the university for failing to heed his call made at the inauguration ceremony, but he was, in fact, urging the university to consolidate the achievements it had made in the light of his challenge ten years back.

To make this clear, Mwalimu pointed out that the university had taken the challenge seriously by trying to be relevant both to the country's manpower needs and by giving greater emphasis to a study of Tanzanian conditions, ideas and resources.

One of the examples of the university's efforts in this regard is the recently established Centre for Continuing Education (CCE) at the Faculty of Agriculture, Forestry and Veterinary Science, Morogoro campus.

Established in collaboration with the Ministry of Agriculture and the United States Agency for International Development (USAID), CCE is aimed at serving as the outreach arm of the Faculty by providing facilities and services for short and refresher courses, seminars, workshops, meetings and extension activities.

According to the Centre's Acting Director, Dr. K.J.B. Keregero, CCE is designed to "provide practical and useful learning to those who are serving in the field, in the classrooms in remote areas and institutes and in places intellectually isolated from the increasing flow of new knowledge."

By periodic return to the classroom, Ndugu Keregero explained, serving officers can gain special knowledge and reflect on their professional work.

The CCE, therefore, attempts to provide relevant learning by using methods appropriate for mature, goal-oriented participants. Through a combination of practical and theoretical ingredients, each workshop, course or seminar may give a new viewpoint and renewed interest to the participants in their careers.

The Director said CCE's main purpose "is to create a vehicle where the Faculty's specialised expertise can be tapped to upgrade the skills, outlook and knowledge of existing service personnel working at the village level."

It collects information on agricultural research results and new technology and disseminates it to field agriculturalists through in-service training courses; and prepares and distributes village-oriented training and demonstration materials.

Planning for the CCE began in 1975 in response to the need for a facility where agricultural personnel could continue their education after formal studies. In 1977, the Ministry of Agriculture and USAID agreed to fund the Centre's first phase which is now completed at an estimated cost of 1.5 million shillings which was provided through the special development fund of the ministry.

The first phase included construction of buildings which also house the Centre's parent department of agricultural education and extension and a hostel.

It also included an audiovisual unit which provides services to the Faculty, Centre users and the community. The unit, whose equipment was provided by USAID, also provides pilot training and teaching materials for other institutions with similar interest as the Faculty.

The first phase also includes a conference hall for 100 participants and a meeting room for 15 people. The audiovisual classroom can hold 30 participants while the hostel can accommodate 24 people.

According to Dr. Keregero, planning for the second phase is currently underway. This will include the expansion of the hostel to accommodate 64 people and the extension of other buildings to provide classrooms, meeting rooms and offices expected to be completed in 1985 at an estimated cost of nine million shillings.

USAID contribution in the establishment of the centre has so far been used in the purchase of the audiovisual equipment, three vehicles and providing for 11 scholarships in the United States at different levels. At the moment, there are also three technical assistance personnel from USAID working with the centre. USAID contribution to the Centre is currently estimated at 2.3 million dollars (23 million shillings).

EXTENSION officers from coconut-growing districts who had attended a short course at the CCE explaining to villagers modern coconut growing and management.

Tuesday, May 31, 1983

The Centre's activities, including programmes, began before the completion of the first phase buildings in September, 1982. The programmes began in March, 1981 with the first course being held in November, 1982. This was a forestry research methods course for forestry research officers from eight Eastern and Central African countries.

It was sponsored by the faculty's forestry division and the Canadian International Development Research Centre (IDRC). Since then, 15 conferences and short courses have been held at and outside the Centre, with over 800 people participanting.

According to Dr. Keregero, the centre has plans to hold about 13 more conferences and short courses beginning next month to April next year.

Dr. Keregero said that parastatals, ministries, international agencies and Faculty's departments officials had been participants in the CCE conferences and short courses. The courses included those for agricultural secondary school teachers, extension officers, regional livestock development officers, forestry researchers and state farm managers.

Others have been for Ministry of Agriculture Training Institute (MATI) instructors and village officials. An informal approach with practical experiences and active participation of the participants had been encouraged throughout the conferences and short courses whose emphasis is placed on upgrading extension skills and increased technical knowledge.

On policy development matters, the Dean of the Faculty of Agriculture, Forestry and Veterinary Science is responsible for the overall CCE management and operations.

A national steering committee composed of representatives from each of the Faculty's divisions, the Prime Minister's Office and ministries of Agriculture, Livestock Development, Natural Resources and National Education provides overall direction and suggestions on the Centre's programmes.

ANNEX D

END OF TOUR REPORTS

1. Giltrow
2. Sensenig
3. Laya-Sensenig
4. Letter from Giltrow to Dean Kyomo
5. Letter from Kyomo to Giltrow

END OF TOUR REPORT

David R. Giltrow

Part way through the project, I found a book which contained a number of observations about human behavior and organizations. The book was called The Official Rules. One of the "rules" which seemed to me most appropriate for easing my dilemma as both Chief of Party and Communication Specialist struggling to achieve a number of objectives was this: "There comes a time when one must stop suggesting and evaluating new solutions and get on with the job of analyzing and finally implementing one pretty good solution." This to me meant that the project should end up with an Audiovisual Unit which could provide reasonably good quality services for the Faculty's staff and our CCE courses; teach as many students as would listen to the principles of agricultural education and extension; and leave behind a working Centre for Continuing Education. It was not possible with the staff, time, and conditions to do much more. I think we implemented "one pretty good solution."

We felt it essential to stick with basic institution building using methods and techniques which would be recognized as conventional and direct. Indeed, for better or worse, my brief flirtation in 1982 with trying to introduce computer-assisted teaching materials production and management of CCE courses was delayed, and will have to be tried by others at a later time. I may have been saved by circumstances from the frustration and disaster of trying to violate one of the official rules.

If we didn't succeed completely in meeting all the 32 detailed objectives laid down in 1980 (revised in 1981) it was not because we needed money. This was a project which had more money to spend at the end than it could manage to do with the same care and frugality which had characterized the earlier period. In retrospect, it could be said that we didn't spend the last five months of the project. It was always our impression from both Logan and Dar es Salaam that we were inadequately funded. So we behaved accordingly, and as we felt the times and mood of American tax-payers warranted. We note with regret that the result of the Dean's request to USAID for additional time to institutionalize the project was rejected, although money which could have been used for a one year's extension went to endeavors peripheral to the project's objectives. Three issues emerge at the end of the USU contract which need some elaboration from the personal perspective allowed in this report.

1. Relationships with USU, USAID, and the University of Dar es salaam.
2. Conditions in Tanzania during the project period.
3. Future prospects of the Project's three components.

Specific facts, suggestions, and observations are avoided here as these are contained in the various semi-annual reports written during the lifetime of the project.

Relationship with USU, USAID, and UniDar

We arrived in Tanzania at the end of January, 1980, to discover that instead of the original job description, my fate was to become Chief of Party. Back in August, 1979, it had been suggested this might happen, so it was a major disappointment but not a surprise. I had purposefully left an earlier position in Chicago because it became increasingly administrative but there was little choice in Morogoro. No other permanent team members would be in

Tanzania until mid-year and the days were rapidly passing by since the contract had been signed and implementation formally started on October 1, 1979. In short, if I wanted a job, I would have to take over for Professor Moris when he was scheduled to leave in March. Thus I started out--and end up--a very reluctant Chief of Party. Indeed, some of the shortcomings of the project implementation can be quite closely attributed to my taking on the role of COP in addition to trying to fill the Communication Specialist role. The time taken to write reports, attend meetings, draft telexes, and look after contract details was taken from my professional time--perhaps as much as an overall 30%, which accumulated to more than a year's efforts. Of course, that time had to come from one or another of the team members, but as it happened the COP job was not part of my job description.

As Chief of Party, I discovered myself in the awkward position of trying to satisfy the demands of three quite different institutions in addition to satisfying my own personal inclination of how things should be done. I had left the status of independent consultant and now return to that status--which reinforces the feeling of apartness from institutions. However, I feel I have been loyal to all concerned despite occasional times of doubt about all three institutions' ability to respond to rationality. But I am sure the feelings have, at times, been mutual.

The major dilemma in dealing with Utah State from Morogoro was the classic one of headquarters-field communication. Without a telephone and with a ten hour time difference I had to rely upon, first, telegrams taken into town for dispatch at the post office; later telex machines in town; and finally after a year and a half of lobbying together with others, a telex machine in the Dean's office. As this project wore on and achieved the status of mostly "no problems", it seemed we became a part of the woodwork back at Logan. The much larger Somalia project brought in more overhead, got more attention, and made greater demands. I believe we were not a particularly squeaky wheel and thus did not get much oil. From my standpoint, that was not all bad; it also meant few extra demands were placed on us and gave us a feeling that we could get on with the job. Our salaries were paid regularly as well as our occasional reimbursement claims--more than can be said of some other USAID contractors, as the Sensenigs can testify. In short, the USU linkages were generally satisfactory, though on several occasions we felt like sending the one-line cable "Is anyone home?" For the sake of numbers, I totalled some 160 dispatches of one sort or other to USU in the four years out here--slightly less than an average of one communication per week.

The relationship between contractor and USAID has been characterized as one of adversity by the premier COP in Tanzania of the 1970s, West Virginia's Bob Maxwell. I tended to resist that description, since I'd prefer to duck a quarrel than be part of one. But, ultimately, Maxwell had it right. By being asleep at the switch, I let some $80,000 go over to the composting workshop without getting any returns for our project or for the Faculty (except some publicity and an unused brass dedication plaque at the last minute, President Nyerere was unable to dedicate the CCE as scheduled). We were expected to churn out teaching packages while still involved with the basics of building up the three components of the project. Yet, as noted before, the suggestion of continuing an extra year to devote to teaching package production was turned down.

One fundamental difference between this project and other USAID projects was that we were sponsored by a university (USU) and were part of another

university as well (UniDar). Nonetheless, from the USAID perspective, the project members were still to fit into the role of "technician". It was not particularly a major issue as none of the four USU team members was pushing hard to do research--the only means of advancement, and thus future job security, in academia. Brain was not hard-pressed as he was already a full professor. Brewer was nearing retirement age and did not come from a research orientation. Sensenig was now committed to development action rather than development research (though his research on the effects of the Musoma resolution was the only research conducted in the Faculty on a basic institutional issue between 1980 and the end of 1983). I was resigned to putting several communication research topics on the back burner, seeing no hope for time to pursue them while serving as COP. However, it seemed my undertaking to write part of a forestry extension manual, which will probably become a textbook in forestry institutions, was not viewed very kindly by the Mission. This was a puzzle indeed, as it constitutes a fundamental response to producing teaching materials for an audience in Tanzania (as well as other parts of the world since the publication will be by FAO). Another written reference (in a semi-annual report) to the lack of opportunity to conduct research was harshly criticized by the external evaluation team as something quite unnecessary and to be done on one's own time. Yet as senior members of universities, we were expected to conduct research and publish it as part of our normal duties.

Generally, however, the relationship with the Mission was good and affable. We served as a convenient visit for the Mission's visitors and so hosted a wide range of mostly interesting people. They received some exposure to the project, including the former USAID Assistant Administrator for Africa, who criticized the architecture and left. We enjoyed knowing members of other USAID Tanzania projects who also had to suffer through the same bouts of the Mission's "administrativeitis syndrome", that is, prolonged project reviews which wasted time and energy, and left few things changed except for diminished morale.

I remarked to some in the course of the project that the various delays in obtaining commodities, getting participants off to the USA, the mysterious delay in getting the Peugeot station wagon (requested January, 1980; finally driven to Morogoro June, 1983), and assorted other issues made it generally more difficult to deal with U.S. bureaucracy than the Tanzanian one. To paraphrase an observation made in another context, it may be that USAID contractors and USAID Missions are two groups separated by the same citizenship. We expect more of each other than may be realistic.

The most complex relationship was the one which was most continuous and closest--with the University of Dar es Salaam. I feel we succeeded here on an institutional level and on a personal level, except for the key relationship with the DAEE Head. There relations during the final few months of the project were unfortunately strained. Part of the problem, it seems in retrospect, was structural: How to fit three independent thinking, and acting, senior American staff (with external contracts, access to scarce items such as transport, limited time remaining in the country, and operating under a time-based agenda) into a tightly defined role operating under local procedures? To let the three depart too far from the established ways of doing things was to lose control--and lose face. To impose too much control raised hostility all around. And, again, we were not only part of the University of Dar es Salaam but of other institutions as well. The result in the end was an uneasy truce based more on silence and

avoidance of conflict than a working out of the issue. Personalities and expectations were different.

The degree of integration between project and local institution which was experienced in the first half of the project was not likely to continue as the momentum built up and the number of activities increased. In a sense, the tension arose from successes: high activity at the CCE, demands for AV services, and two years running of the student option program in the DAEE. Added staff and increasing demands on people's time as the result of developing outside linkages led to vastly increased areas of procedural and philosophical differences in the use of scarce things and scarce time.

This conflict was, I'm pleased to add, an isolated case. We found relationships with other colleagues in the University and other institutions cordial. I leave behind friendships, both strong and casual, which mean a great deal to me.

Conditions in Tanzania during the project period

Early planning of this project goes back to 1976 when it was conceived as a four person undertaking, the East African Community was still functioning, the devastating OPEC price increases for oil of 1979 were not part of the planning, and the war in Uganda was hardly expected. Indeed, during those early planning stages for the project, the prices obtained for coffee and tea were hitting an all time high. From the USAID point of view, the period leading up to the project implementation was also rosy--it was the Jimmy Carter/Andy Young period in Africa with President Nyerere visiting the White House for the first time since John F. Kennedy was president of the USA.

As we depart, there are again signs of some optimism with regional cooperation, higher commodity prices, and a more flexible agricultural policy from Tanzania, prices remain high, and goods of all sorts are scarce. Local salaries have risen some but not in line with the cost of living. The Faculty will shortly become a new university and thus the future of the project's main elements may undergo changes--quite likely strengthened if things go well. More about such conjecture in the next section.

What does all of this have to do with Project 621-0135? I think the following observations apply:

1. In a period of scarcity, this project stood out as supplying certain things to people: scholarships for study in the USA, vehicles, limited supplies as brought in informally by the project staff from leave, additional housing, audiovisual equipment, and an avenue for obtaining revenue from local and foreign origins for the CCE courses.

2. On the other hand, we did not have a foreign currency component to supply materials and equipment for the three CCE buildings or to subsidize the CCE activities. This had to be done through local sources. In the case of the buildings, the results have been disappointing. In the case of the self-sustaining of CCE activities, some 2.5 million shillings brought into the Faculty as the result of Centre programs is a sound testimony to the availability of funds for such purposes and the feeling of course sponsors that this is money which could be spent at Morogoro. The lack of project money for sponsorship of courses was a distinct advantage to developing future self-sufficiency.

3. Under the conditions of the time, it was possible to point to project activities which gave some ray of optimism that progress within the Faculty was possible. A viable, self-sustaining unit could be developed which would regularly involve the Faculty in the wider community of national and international agriculture.

4. While announced mid-way through the Project, it was only at the end that the Ministry of Agriculture had begun implementing the policy of re-structuring the extension services of the nation. If this had happened earlier, it is likely that the impetus to change the DAEE curriculum in the direction of training more professional extension officers would have been more urgent. Curriculum revision is necessary if students are to be induced to join the DAEE. Few students want to end up teaching in MATIs, but many more have an interest in extension.

5. As with batteries, matches, and cooking oil, audiovisual supplies were virtually unobtainable locally during the period. A tiny container (2 ounces?) of India ink used for poster making and technical drawing sold for 400/-or $33. However, it was possible through buying supplies outside Tanzania, and being reimbursed for them, to establish a modest audiovisual service providing photographic, graphic, and equipment to Faculty members and for CCE Courses. For public relations purposes and to fulfill the objective of widening the Faculty's services to the community, some services were supplied to outside groups. But the secret was the lifeline of people coming into the Faculty from outside the country who were willing and able to bring supplies--a box of photo paper here, a packet of overhead transparencies there. The ability to reimburse people who required it in foreign exchange was especially helpful for Tanzanians who had other items on their shopping list besides audiovisual supplies. For outsiders, it was often possible to pay in local currency. The lesson learned was that a little bit of foreign currency can go a long way given the good will and interests of local and outside travellers. I am especially grateful to those who offered to do this extra shopping without being asked. They proved it was possible to overcome shortages of items hardly vital to survival but which did serve to keep a modest international standard of publishing and teaching alive on the campus.

6. A victim of the petrol shortages was the transport of students and CCE course participants to surrounding areas for practical work. The issue is complicated since it was not as if the three project-supplied and one Ford-funded Landrovers were perpetually or even intermittently stranded on blocks collecting bird droppings under a thorn tree. As the difficulties of daily living continued for people, the priority of how fuel would be used shifted from field-oriented use towards supplying basic items for the CCE and staff. Transport issues loom as the single most complicated and abrasive issue facing administrators in Tanzania today.

   Three bicycles were purchased by the DAEE during the period for use by messengers, but for various reasons only one remained serviceable. A motorcycle also was in the DAEE when the project started but was off the road when spare parts were not readily available. The theft of additional parts left it even more unserviceable. The failure of these alternative means of transport left the pressures on the Landrovers, especially as they were relatively new and thus operational. We take some pride in having ordered spare parts and tires for the vehicles to keep them

running for another three or four years of reasonable use and maintenance after the project ended.

7. Housing and construction issues were a major part of the work during much of the project lifetime. Building construction was not an objective of the project, except for securing funds for Phase II and furnishing Phase I. Yet shortages of building materials and lack of capable supervision meant time had to be devoted to construction if satisfactory physical facilities in which to implement project objectives were to be achieved.

   We feel this time was well spent to avoid more serious problems than already existed with the three staff houses and three CCE buildings which were built. But it was a waste of our time in the sense that the construction company should have been responsible to do good work. The hours and days spent tending to details have proven of value. For instance, all three houses have a steady supply of water as the result of refusing to accept a plan which would have meant virtually no water for one house and intermittent water for the other two. The hostel rooms and offices have ceiling fans, which were not part of the original designs and were on the verge of being omitted. We were defeated in getting glass for the CCE, and the rainwater pours into the offices through leaky roofs, but the film viewing and darkrooms have electric outlets which were omitted during design and almost left out during construction. We have a door separating the audiovisual unit from the main CCE facility to assist in sound isolation and security, an addition at the last minute when it was apparent none was specified. The houses have adequate electrical outlets in each room because we brought them into the country on returning from leave.

   In short, time and energy went into doing things which had not been foreseen in the original project design and implementation plans. Even so, we had to cut short the efforts which went into these "extra" activities in order to continual with the main tasks. If conditions had been different in Tanzania at the time, there would have been more time and energy left for substantive efforts.

Looking to the future

The most specific future event as the result of the project will be the arrival later in the year of some $80-90,000 worth of office supplies, printing materials, audiovisual materials, a complete microcomputer system, some 1,000 titles of books, journals and other publications, equipment for the CCE, vehicle spare parts (including a trailer) and field extension equipment. I am glad this was all able to be ordered and supplied at the last possible minute, but sad that they did not arrive during our time in Morogoro. The lists had been outlined much earlier in anticipation that funds were available during our tenure. The overall effect will be to prolong the effective life of the project, since the calculation of supplies was based on a three to four year consumption rate.

From the specifics of stencils, spark plugs, and photo stop bath, it is a more difficult matter to predict the fate of the three institutions of the CCE, the DAEE, and the AV Unit. We did not see the separation of the CCE from the DAEE in the lifetime of the project. We did see the weakening of the DAEE as the result of attention paid to the Centre activities, which went on at a very brisk pace throughout 1983. The weakness was expressed by the option students of 1983. It partially resulted in no option being offered by DAEE in

1984, despite a pool of some 70 students to draw upon. Other reasons for no option included the lack of curriculum reform and a major problem with a course offered by another department to DAEE students which amounted to professional misconduct.

If the year without the option teaching load is spent strengthening the DAEE curriculum and building a separate entity for the CCE, then the future of the two institutions will be reasonably bright. For the CCE, the financial success is a lesson in what can be achieved despite little overall planning for a self-sustaining operation. The danger is that the lack of clearcut financial planning and policy-making may result in further short run gains, but long term losses if services and buildings deteriorate and former users go elsewhere. Control of the "reception" element must be maintained or, as I heard from Tanzanians outside the Faculty, the image will develop of a place to get a lot of free beer and a break from office routine. In short, the goose which is laying golden eggs requires careful feeding and attention.

Attempts to recruit a fulltime, experienced administrator as Director apparently did not bear fruit. However, it would seem possible to recruit a recently retired senior officer on a contract basis who would give the sort of direction which is impossible when the Acting Director must also fulfill obligations as Head of the DAEE and work hard for the next promotion round. These are cautionary notes on a unit which has been able to provide a wide variety of good services to a number of institutions in a comparatively short time. The roles of the CCE executive committee and steering committee should be examined, as outside oversight is healthy for such an operation.

We were defeated in efforts to get Phase II of the Centre underway before our departure. The kitchen and laundry area with attached dining room and lounge are vitally needed to make the facilities independent of the student's cafeteria. They will, as usual, bring many more problems than exist now, but in the end should prove of benefit to the new university and make the Centre a more versatile institution. The added hostel rooms and meeting rooms will provide the kind of flexibility of programming which is not possible now. But the funding and construction process is such a tedious one that I cannot see occupancy before three to four years from now.

The Audiovisual Unit is certainly one of the best equipped such units in Tanzania. The staff is also experienced and versatile. But because of the ad-hoc nature of the CCE course planning, their contribution to CCE courses has been minimal in many instances, though important services have been performed. A course for KILIMO regional publicity officers originally discussed in 1981 and planned for February, 1984, will not be held in the CCE because of lack of consultation between CCE administrators and the AV Unit. Careful course planning should be one of the primary activities of the CCE and a direct part of the AV Unit's work. I was not able to be of help in this critical area (except in the MATI tutors course) since most of the course planning was done on a casual basis, rather than in a systematic instructional development manner. Additional experienced staff are required in the Unit, but they must be people at the higher end of education and experience, rather than trainees or Standard 7 leavers. It is difficult to find such people as there is no place in Tanzania where people are trained in AV methods. Perhaps a teacher with an interest in graphic arts, photography, and course design could be found. This will be vital in the future as Mr. Madalla is preparing a Ph.D. proposal and thus will be lost to the Unit for some three years of study leave if his proposal is accepted. My proposal to use US Peace Corps volunteers has been drafted and awaits action.

It will be essential that the coming flood of supplies be used on a yearly quota basis. That is, if it is planned to have supplies for four years, then the materials should be divided into that period, marked accordingly, then rationed out through the year, just as money is rationed on a year-to-year program. This was also the plan with the equipment and the reason for redundancy of projectors, cameras, enlargers, etc. The equipment planning was based on a ten to twelve year period, but requires that pieces be phased in after being "mothballed" for various periods of time.

All of these comments reiterate what USAID chooses to ignore in many of its projects, including this one: it is one thing to build an institution and it is another thing to then institutionalize it. We barely got these institutions built before the exit sign was put up. By 1985, however, there will be a solid core of Tanzanians trained by the project who could offer a strong program in the DAEE; provide the kind of advice on conducting CCE courses not now provided; and if an experienced person is hired to bolster the AV Unit while Mr. Madalla is on study leave, help guide the activities of the AV Unit into a number of worthwhile avenues.

One final note on an issue which has woven its way through this report--the question of teaching package production. It was not until late in the project that I realized the source of my anxiety about both the project paper's reference to teaching packages and the drumbeat on the topic from Logan and Dar es Salaam. It was simply that in trying to produce teaching packages for MATIs, extension, and secondary schools, we would ignore our primary clients on campus, particularly the CCE courses. Campus clients were our primary target audience and not the others, who have other institutions and projects to provide materials for them. In the end, we weren't able to produce the full-blown teaching packages envisaged for us. But we did continue to serve our primary clients reasonably well given the delay in providing supplies.

Finally

Peggy and I have spent a lot of time in Tanzania, though our Kiswahili may not reflect those years. We have friends from several different eras who mean a great deal to us. My skills are best expressed in the physical world where a bit of technology is involved. Peggy has functioned best in the world of human relationships and the giving of self rather than scholarships, vehicles, and cameras. She also pitched in to host visitors and often filled an administrative assistant's role necessary to keep the project business moving. For this I am most grateful and know the other team members also share my gratitude.

Tanzania as a country and its people repaid us with a sense of involvement in basic environmental and human values. For this and many more things we are grateful to those friends and neighbors with whom we shared the past four years on the Morogoro campus.

END OF TOUR REPORT

Barton Sensenig 3rd

1. OBJECTIVES

The objectives set for the Agricultural Extension/Rural Sociology Specialist, although all generally in line with the original project document, were developed and modified over time as the project progressed. They were also given somewhat different emphases by USAID and the University of Dar Es Salaam.

1.1 Training Packages

The objective which was ultimately given top priority by USAID was the production of Training Packages with specific lesson plans on improved agricultural practices. This was originally a relatively minor aspect of the project, but developed importance during a review of the Farmer Training and Production Project. The rationale was that these training packages would constitute a lasting contribution which could be left behind after the departure of the technicians.

1.2 University Teaching

From the perspective of the University of Dar Es Salaam, the major objective was the teaching of regular university courses while the Tanzanian staff were studying abroad. The curriculum for the Department of Agricultural Education and Extension required an extremely heavy load for both students and staff (roughly double that of the Rural Economy Department, and throughout the past two years these have all been covered by a skeleton staff of five teaching personnel.

1.3 Adult Education in the Centre for Continuing Education

Along with university teaching, the University required more and more teaching of short courses, seminars and workshops for the Centre for Continuing Education as its activities expanded. Almost every group needed training in agricultural extension, rural sociology or educational psychology in addition to their technical materials.

1.4 Institution Building

More generally, USAID and the University shared interest in institution building to establish and develop both the Department of Agricultural Education and Extension and the Centre for Continuing Education. The author's activities in this area focused on curriculum development for the DAEE--specifically development of village field practicals for students--and on the development of institutional linkages between the CCE and the various departments and development projects which the Centre should serve.

2. ACCOMPLISHMENTS

Both overall project success and my own accomplishments can be rated as "good" under African conditions; roughly 50% of the initially hoped for

outputs were attained. The initiation of the Centre for Continuing Education represents an invaluable contribution to the educational and development institutional framework of the country.

2.1 Training Packages

The author undertook a major role in the development of three training packages: (1) Improved Cowpea Cultivation in Tanzania, (2) Improved Cultivation of Field Beans in Tanzania, and (3) Psychological, Social and Cultural Factors in Extension.

The Cowpea package was initially prepared by the Division of Instructional Technology at Utah State University under the direction of Dr. Nichols Eastmond. The author directed the field testing and revision of the first draft version which was then revised and produced in second draft form by USU. This was an elaborate multi-media package including slides, transparencies, charts etc. in addition to written materials. Lessons included programmed learning "worksheets" to enable an individual to study the technical materials on his own. The package was intended as a demonstration of all the various media technology and approaches which could be utilized in developing future modules. Copies of the second draft package were distributed to the Ministry of Agriculture Training Institutes (MATIs), USAID, the CCE, The Tanzanian Agricultural Research Organization (TARO), and the Ministry of Agriculture. It will be further tested by these organizations in the course of their training and eventually revised again. The field testing of the module highlighted the need for more consideration of inputs from farmers and extension agents to the agricultural research stations both for the planning of their research and the development of recommendations for farmers. In particular, a farming-systems perspective is needed. Research station experiments lacked a comparison plot of "the way farmers plant now" (intercropped, not in rows), and also lacked data on cost of inputs and labor, which are the farmers' prime considerations. Recommendations often involved chemicals not available to the farmer and required an investment of time and money in such activities as spraying, which the farmer is unlikely to undertake for such a minor crop. Testing of the module also provided lessons regarding the method of presentation. First, there is need for much more of the training to be conducted in the field in practicals rather than as theory in the classroom. Second, the emphasis on sophisticated media (which cannot be reproduced for the farmer) has led to the neglect of basics. There is need for very basic instruction in how to use a chalk board and flip charts, and even more basic training in how to make flip charts (from newspaper), pens (from bamboo & cotton), and ink (from berries etc.).

The Field Bean module was drafted in cooperation with Dr. A. K. Karel of the Crop Science Department. It consists of an extensive Trainer's Manual with lesson plans and a brief farmer handout. It is being reproduced and distributed by the Farmer Training and Production Project of USAID to the various MATIs (Ministry of Agriculture Training Institutes) where it will be tested. Dr. Karel will oversee the revision of the preliminary draft after testing. The experience of handling the Cowpea package was utilized and built upon in developing the Field Bean package. The module includes not only lessons on the procedures

recommended by researchers assuming all inputs are available, but also lessons on such practices as composting which are feasible without expenditures in the absence of inputs. The training coordinator is entrusted to select and adapt the mixture of lessons he will present according to local conditions. A final lesson attempts to teach the basics of how to perform a simple agricultural experiment so that the participant or farmer can compare the output of the recommended practices versus his current methods and decide for himself if the techniques work in his local environment.

The module on Psychological, Social and Cultural Factors in Extension was written to cover a specific item in the regular curriculum of the Ministry of Agriculture Training Institutes (MATIs). It consists of lesson plans for five hours of classroom teaching involving such techniques as role playing and small group discussion. In addition to the basic content, the lessons emphasize the need for a "bottom up" approach involving villagers in project planning and implementation. Specific principles and techniques for doing this are taught. This module is also being reproduced and distributed by the Farmer Training and Production Project. It will be tested in the MATIs and eventually revised.

2.2 University Teaching

University teaching was the activity which demanded the most time. The courses taught are summarized below:

1982:
- AEE 307 Rural Sociology (48 hours, 10 students)
- AEE 105 Introduction to Rural Sociology (18 hours, 75 students)
- AEE 315 Educational Evaluation (30 hours, 3 students)
- Special Project: one student throughout the year.
- Special Project: one american student, one term.
- VEX 407 (Rural sociology component) (five hours, 25 students)
- Second year Musoma practical: 30 hours, 75 students
- AEE 301 Agricultural Extension (field practical half) (32 hours, 35 students)
- CI Research Methodology (30 hours, 13 graduate students)

1983:
- AEE 307 Rural Sociology (48 hours, 20 students)
- AEE 301 Agricultural Extension (field practical half) (32 hours, 70 students)
- Vex 407 (Rural sociology component) (5 hours, 25 students)
- AEE 306 Methods of Secondary Teaching in Agriculture (35 hours, 8 students)
- Teaching Practice (8 students, about 40 hours of my time invested)

Three lessons derive from this teaching experience: (1) The course requirements for the Agricultural Education and Extension option need to be drastically reduced; (2) Courses related to agricultural extension need to be upgraded relative to courses on education so as to constitute roughly half of the department's offerings; and (3) Courses need to be

restructured to involve more field practicals and student participation as opposed to lecture and memorization. Specific recommendations for implementing these changes have already been submitted to the Department Head.

2.3 Adult Education in the Centre for Continuing Education

Considerable time was also invested in teaching short courses for the Centre for Continuing Education--especially in 1983 as the Centre came to function at full capacity. First there was the one-week Cowpea Workshop in April, 1982, which I organized and coordinated before the opening of the CCE building. A second major effort was involvement in a series of six short courses organized by the National Coconut Development Board (NCDP) throughout 1983. Together with NCDP staff I organized and conducted the training on agricultural extension which culminated in an elaborate "field day" in a village with participants making a variety of presentations to the villagers. I also served as coordinator of one of the workshops. A third major effort was the MATI tutors course (June-August 1983) which required regular weekly teaching of rural sociology and educational psychology over an extended period. In addition, I monitored the four-day field practical in a village. Further, a number of individual sessions on principles of extension or rural sociology were presented at various courses such as the course for Regional Livestock Development Officers and the Grain Storage training course for Peace Corps volunteers.

Two major lessons can be drawn from these CCE experiences: (1) The Centre requires improved management, and (2) there is a role for Centre staff in helping faculty presenters to make their statements simplified and practical rather than theoretical. It is clear the Centre will be a great success and is fulfilling a great need. At present it has no competition. It is not yet, however, well managed. Program sponsors often complain of poor services and program management, but still return for future courses. It is recommended that the Centre be quickly separated from the Department of Agricultural Education and Extension and headed by a professional program manager. Currently CCE programs are deficient in providing services for participants such as food and transportation and planned recreation. In addition, the CCE is currently incapable of conducting a successful field practical on its own due to various constraints such as failure to approve expenditure of budgeted funds, lack of advance preparations, and failure to provide transportation on time.

The second lesson from the CCE experiences is that university professors need help to bring their messages down to the practical level of the CCE participants. Their lectures are usually erudite and accompanied by a handout suitable for publishing in a scholarly journal. Centre and DAEE staff should take a role in helping these professors simplify and make their messages practical. This effort could profitably be oriented toward editing and collating these materials to be published as training packages. Hopefully, the professors will be led to utilize a greater variety of learning experiences such as role playing, group discussion and field practicals rather than relying totally on lecture.

2.4 Institution Building

Two other major efforts towards institution building were undertaken. For the Department of Agricultural Education and Extension, an effort toward curriculum development was made focusing on developing agricultural extension field practicals in the villages. This was successfully initiated in 1982 with the AEE 301 extension practical which is taken by all third year students. Another practical was also conducted with second year students during the Musoma practical. In 1983 an attempt was made to establish a semi-permanent relationship with ten surrounding villages whereby successive classes of students could cooperate with villagers in carrying out extended development projects. This effort was not successful due to: (1) failure of the Department to provide transport when required and (2) failure to obtain financial support for larger projects. The effort to develop field practicals, however, continues. The author helped to write a proposal to the French government and NGOs which focuses on horticulture within the Crop Science Department, but also includes a provision for a staff member within DAEE who will continue the field practicals. More broadly, a report to the Faculty Board on the Musoma Resolution was also prepared combining quantitative and qualitative analysis and including recommendations such as improved field practicals.

Institution Building for the Centre for Continuing Education focused on the development of linkages between the Centre and various institutions and projects around the country which could be served by the Centre. Early efforts included drafting a Centre brochure and presenting a paper on the Centre at the National Council for Agricultural Education. Later efforts included visits to various projects and centres around the country in such places as Ilonga, Uyole, Kilosa, Arusha and Dar Es Salaam. As part of these efforts I taught courses in Uyole and Iringa independent of CCE courses. Several of these contacts later contacted the Centre and scheduled courses.

3. PROBLEMS

Many problems are expected in developing countries. Only major problems on which the University of Dar Es Salaam or USAID could take action are noted here.

Effective departmental administration is a general problem in universities. Academic professors with no training in personnel management or business administration must perform these duties. As a community of academics, a university department requires a "bottom up" approach involving the staff in decision making. Departmental administration became a major problem in 1983 when a new, inexperienced Department Head adopted an autocratic approach to running both the Department and the Centre for Continuing Education. Two solutions are possible: training Department Heads in administration and management, and/or hiring departmental administrators. Both approaches are recommended. A staff development seminar on management techniques could be arranged for all department heads and senior staff, utilizing the facilities of the CCE. In addition, a professional administrator must be located to head the CCE and, if possible, an effective administrative

assistant (similar to Mama Sharma in Crop Science) could be sought to aid administration within the DAEE. Legal and controllable techniques for augmenting rewards to personnel in proportion to their productivity must be sought and sanctions for non-performance of duties must be enforced. USAID should include such management training for all participants sent to the United States.

Transportation is always a major problem. The two USAID Landrovers allocated to the DAEE and CCE were never available to project staff for official use although they ran continuously. Several recommendations are in order. First, there should be a transportation officer in the DAEE as in other Departments. Second, there should be a clear policy for scheduling giving priority to official use over private use of the vehicles. Third, there should be open-book scheduling and coordination to avoid duplication of trips to Dar Es Salaam etc. And, there should be careful controls over drives to eliminate use of the cars for personal gain. For USAID, it is recommended that vehicles be supplied with recording speedometers to ease controlling drivers. Also, a variety of vehicles (small cars, motorcycles, trailers) should be supplied for different uses. Most travel was to Morogoro or Dar Es Salaam where a more fuel-efficient car could have been used. If feasible, a project should include an extra car to cover the inevitable call for an "ambulance." Control over project vehicles should remain with the USAID technicians until their departure.

Finally, a few problems which keep reappearing in USAID projects should be noted and avoided in the future. First is the problem of coordination with counterparts. In this contract my counterpart was abroad throughout my tenure. Elsewhere there may be a short overlap before or after the counterpart's training in the USA. This leaves the technician with no one to work with throughout most of his or her contract. In such cases, it is recommended that USAID plan two layers deep, identifying also the counterpart's assistant with whom the technician can work throughout. Career development must be anticipated in which the counterpart will eventually be promoted and the assistant take his place. A second problem is the late arrival of equipment. Our audio-visual equipment arrived towards the end of the contract and supplies (paper, stencils, etc.) had not yet arrived as of our departure. It is recommended that such procurement be allocated to the contractors rather than handled by USAID and that orders be placed with long lead times so the equipment arrives within six months of the arrival of the technicians. A final problem in this contract was in accounting. Technicians' requests were often rejected for lack of funds, but in the end a large chunk of hidden funds were located and transferred to other projects.

4. RECOMMENDATIONS

4.1 For the Department of Agricultural Education and Extension

4.1-1 Improve departmental administration. Hold weekly or monthly staff meetings. Consult and inform staff about decisions. Set clear policies--especially regarding vehicles. Plan, schedule and prepare activities in advance. Release funds in advance to permit obtaining inputs on time. Insist on personnel (especially drivers) being on time. Arrange

to reward good performance and enforce sanctions for nonperformance of duties and for theft. Decentralize decision making to involve all departmental staff. Delegate powers needed to carry out a task along with delegating responsibility. Give credit where credit is due. If possible, hire an administrative assistant. Separate the CCE.

4.1-2 Revise departmental curriculum. Do not let the DAEE option be dropped or recombined with Rural Economy. Cut the option requirements to a reasonable level and upgrade the agricultural extension courses to constitute about half of the hours.

4.1-3 Continue development of field practicals. Establish semi-permanent relationships with selected nearby villages. Set a regular schedule for village visits. Continue long-run projects involving successive classes of students. Seek funding for larger village projects. Utilize a revolving fund, where possible, to have villagers repay loans from income generating activities.

4.1-4 Encourage a variety of learning experiences in the classroom such as role playing, group discussions and student presentations as opposed to total reliance on lecture and memorization.

4.1-5 Improve grading techniques. Set a departmental standard for the grading curve to be employed for large classes (%A,B,C, etc.). Improve and standardize questions for the external exam to be the proper level of difficulty. Seek ways of reflecting practical skills in the grading in addition to the theoretical knowledge indexed by the exams.

4.2 <u>For the Centre for Continuing Education</u>

4.2-1 Separate the CCE from the DAEE and hire a professional administrator as director.

4.2-2 Help professors giving presentations to simplify their content and handouts to appropriate levels. Encourage them to employ a variety of teaching methods rather than just lecture. Edit short course materials together into teaching packages that will be reusable.

4.2-3 Encourage village visits and field practicals in CCE short courses as a means of ensuring that the training is practical and appropriate.

4.2-4 Since demand for CCE courses now far exceeds time available, the CCE can begin to seek out key institutions within the agricultural sector that need help rather than merely responding to requests as they come in. In this way it can operate at maximum effectiveness. CCE staff can even outline training seen as needed and approach potential sponsors about it. Faculty development seminars such as the one suggested on departmental administration and management should also be initiated by the CCE.

END OF CONSULTANCY REPORT

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Agricultural Ed/Ext Project, USU
Morogoro, Tanzania

1.0 SCOPE OF WORK

The emphasis of T. Laya-Sensenig's consultancy was the "development of a draft training module on a priority issue/problem identified . . ." (relating to the role of women in agriculture, forestry, or veterinary science (See item 5 of Agreement for Consulting Services for Utah State University, Document C/A 82-075.). The consultant's activities shifted away from the focus described in the above document, in accordance with Mission and USU recommendations, which was originally aimed at planning courses for the Centre for Continuing Education (CCE) at Morogoro.

2.0 OUTPUT

Two training modules were developed for the project: (1) Citrus Production: A Training module for trainers (51 pages, including 3 pages of handouts) written with G. Pons of the Dept. of Crop Science, and (2) Let's Solve our Fuelwood Problem: Stoves & Trees; A Training module for trainers (79 pages including 2 booklets and 14 pages of handouts). These modules are aimed at trainers of trainers, such as Ministry of Agriculture Training Institute (MATI) tutors, instructors at forestry and community development schools, folk development colleges, etc., who will teach extension workers.

3.0 ACTIVITIES

3.1 Needs Assessment. T. Laya-Sensenig did village needs assessment alone and with students, as a supervisor during student practicals, for the Department of Agricultural Education and Extension (DAEE) in about 10 villages around the Morogoro campus. She noted specific problems/needs of villagers, some of which can be solved by training activities alone or with minimal inputs. The consultant's work has focused on agriculture and forestry as they relate to the work of village women. The most commonly mentioned problems in villages in the district were the following, not necessarily in order of importance:

- land cultivation with the hand hoe, effectively limiting the area that can possibly be made productive by each adult.
- processing of grain, especially maize grinding, requiring about 8 hours per week.
- lack of planting material and know-how for citrus production, especially sweet orange.
- time and labor spent gathering firewood every 3-7 days.
- crop destruction by animals like wild pigs, rats, monkeys, birds.
- lack of planting material for improved varieties of food crops.
- need for training and inputs for income-generating activities for women's activities, e.g., tie-dying fabric, including accounting, management, and marketing skills.
- others: lack of village dispensary, medical, and other household supplies.

3.2 Literature Review and Interviews. The consultant interviewed 25 people at various levels of government, at schools, and projects, down to the village level, basically asking "What training activities do you think are needed regarding the role of women in food production, processing, and use?". These interviews were conducted at the start of the consultancy in order to plan CCE courses and training materials. They were aimed at broad coverage rather than representativeness. Respondents were from different offices and ministries, for example, Minister Mongela, a Minister of State in the Prime Minister's Office, in charge of Community Development; various officials at the national, regional, and district levels of the Ministries of Agriculture, Natural Resources & Tourism, National Education: Office of Community Development, Morogoro District Development Office, people in various projects in the country, and village workers. The consultant also interviewed some villagers and their leaders. In general, responses were very diverse. Some of the suggestions are listed under Recommendations 4.0., below.

3.3 Activities for the CCE and DAEE. In consonance with the overall Project goals, T. Laya-Sensenig engaged in activities supporting the CCE and the DAEE when necessary.

3.3.1 CCE workshops. The consultant handled training sessions during CCE workshops and conferences on group techniques as applications of her training as a social psychologist, and on low-cost visual aids production for village work. This approach served to balance a high technology emphasis which may not be practical in the field situation where there may not even be electricity to run a projector, for example. She also participated in field teaching exercises where workshop participants practiced teaching with actual villagers, for example, during coconut field days.

3.3.2 Field needs assessments and visits. The consultant supervised groups of students during field practicals both in the classroom and in villages. Field work has provided a concrete view of villagers' needs in general and women's concerns and constraints in particular. Details on needs assessment activities are found under 3.1 above. DAEE staff was extremely limited at this time, and non-departmental staff had to be involved in supervising students in the field. Logistic support for the DAEE staff was extremely limited at this time, and non-departmental staff had to be involved in supervising students in the field. Logistic support for the DAEE and university was not automatic, making field work difficult and sometimes frustrating because of problems with vehicles, drivers, pack lunches, petrol, and so forth.

3.3.3 Village projects. T. Laya-Sensenig, together with B. Sensenig, provided links with villages cooperating with the DAEE. They considered these reciprocal relationships between the department and the villages very crucial for continuing extension training at the university. Examples of activities were providing plant materials and training for citrus production, for maize, and for trees for reforestation. The Sensenigs also facilitated village application for maize mill loans from the rural development bank, and arranged for a maize milling machine to be repaired after it had stood, new but useless and a drain to village budget, for 14 months.

3.3.4 Development of training materials for citrus production. The two packages produced for the project were in the format recommended by the Farmer Training Wing Project (also USAID funded), including a Trainer's Guide (instructions and lesson plans), booklets, handouts, and visual aids. This

project will reproduce and distribute 50-100 copies of the modules. The module on citrus production was not field tested because of time constraints.

3.3.5 Development of training materials for energy production and conservation at the village level. During the initial phases of woodstove design, controlled water boiling tests were conducted and initial field tests were monitored. Four types of stoves were tested using 3 replications: the three-stone fireplace, the mud Louga stove, the Pangawe ceramic stove, and the mud Tunku Lowon stove. Some of the findings are presented below on the average heat transfer efficiency during controlled water boiling tests and on the average number of days one average headload of fuelwood lasts for a family under village conditions. Efficiency is the amount of heat transferred to water in a pot divided by the total amount of energy available in the fuelwood.

Stove type	average efficiency (%)	average duration of headload in days
3-stone fireplace	10%	4
Louga stove	17	9-19
Pangawe ceramic stove	22	11-21
Tungku Lowon stove	11	8-9

An "average headload" varies in weight, moisture content, and type of wood. The Louga and Pangawe Ceramic woodstoves were the two designs which were further refined and disseminated. The Training module includes a detailed booklet on the construction of each of these two stove types. The mud Louga stove can be owner-built and is low or no-cost, although it involves training of extension workers and villagers. The ceramic Pangawe stove can be mass-produced by village potters and be self-disseminating with only initial extension effort.

3.3.6 Wood energy training sessions. The consultant taught theoretical and hands-on sessions on woodfuel energy conservation for 3 groups: (1) district forestry officers on an Irish-Tanzania project in Gairo, Morogoro Region, (2) forestry officers working with UNICEF from the Iringa region and headquarters of the Ministry of Natural Resources and Tourism, and (3) Irish Concern community workers from the Iringa Region. These training sessions provided opportunities to test the training package, "Let's Solve our Firewood Problem: Stoves & Trees", with trainers as well as with women of two villages. The sessions also served to disseminate the technology to relevant institutions which have identified a need for the new technology. Field trips were included to Pangawe village where stove adaptation and field tests were carried out. As of December, 1983, these groups were very much involved in further field testing and dissemination of technology both for the fixed and Louga and for the portable ceramic woodstoves (as well as a portable ceramic Thai bucket type charcoal stove for urban and periurban areas). Many stoves have been built as a result of the training sessions.

3.3.7 Even after the project termination date, the consultant is writing a preproposal for other university staff to continue the Research and Development activities at the CCE and other departments jointly.

3.4 Other activities:

-- The consultant participated in a review-evaluation of an IDRC funded project to develop a charcoal stove at the Division of Forestry at the Morogoro campus.

-- She distributed seed and seedling materials to 5 villages around the university. These villages have been cooperating with the DAEE during student practicals, and they themselves have requested the plant materials.

-- In December, 1983, she participated in a planning session on woodfuel utilization technologies for the Renewable Energy and Environmental Conservation Association for Africa (REECA) held in Nairobi, Kenya, with representatives from 8 African countries including Senegal, Ghana, Sudan, Nigeria, Kenya, Tanzania, Zambia, and Uganda.

-- T. Laya-Sensenig toured projects within Tanzania, viz., CAMERTEC Appropriate Technology Centre, Themi Engineering (produces small farm tools and equipment), Sheriff Industries (ceramics), Singisi Village ceramic project (with DANIDA volunteers), and Olmotonyi Forestry School. She also visited Tanzania Rural Development Project (TRDP) in the Iringa Region; Uyole Agricultural College at the Mbeya Region; the Rungemba College for Rural Development Workers; the Irish-Tanzanian forestry project in Gairo, Morogoro Region; and the Ilonga Agriculture Research Station.

4.0 RECOMMENDATIONS

4.1 Training Packages developed by T. Laya-Sensenig

4.1.1 "Citrus Production: A Training module for trainers" should be distributed to interested institutions whose work relates to horticulture, and if possible field tested by them in actual teaching situations. The Farmer Training Wing has taken on the responsibility for these.

The materials need further editing and simplification to be most useful. It is advisable to test the package with 10 field attendants during a training course. This may cost $2,000 for a 5-day training course. The French-Tanzanian Horticulture Project at the Deptartment of Crop Science may be interested in this aspect, because Dr. George Pons, the project coordinator, is a co-author of the module.

4.1.2 "Let's Solve our Fuelwood Problem: Stoves & Trees; A Training Module for Trainers" needs to be part of a continuing woodstove program, being revised according to user feedback. On the whole, Tanzania needs an integrated energy program at the national level which will include wood and charcoal stoves as part of the utilization and conservation component of woodfuel. At the university level, on the other hand, continuation of research and development on woodstoves for village use could be realized with further total funding of at least $20,000 for the next two years. This will not include nationwide dissemination or extension of the stoves.

4.2 Centre for Continuing Education (CCE)

4.2.1 The following training programs and packages are suggested by the consultant's field worker, interviews, and observations (not in special order):

Income-generating activities for village women, to include basic small business accounting, management, marketing.

Control of Destructive animals (rats, monkeys, birds, wild pigs, etc).

Improved cultivation of maize, beans, bananas, and cassava.
Know your community and how to mobilize/organize people for a project.
Insecticide use for extension workers and villagers.
Food preservation when a surplus exists (improved salting, drying, pickling with vinegar).
Food handling and packaging.
Nutrition and backyard gardening (including plant material).
Oxenization.
Irrigation.
Water storage.
Beekeeping.
In-service training for field auxiliaries in Ministry of Agriculture, using a practical approach, including principles of extension, field area measurement, and so forth.
Animal nutrition for Ministry of Education secondary schools with agriculture bias.
Others:
- University career management course for staff (and seniors?)
- Management of projects, proposal writing
- Extension of simple technologies to villages
- Soil conservation (burning, composting, planting on contour)
- Day care techniques for workers.

These training programs should be focused on the practical skills needed by the participants, with some supporting theoretical knowledge. Considering the small number of extension workers, and the difficulty of funding in-service training, it is suggested that the ministries work out a simple yet effective organization for participants in training courses to have 'teaching to teach' as part of their training. In other words, each trainee trains others who can in turn be trainers. Many village workers have to travel to the district office to get their monthly salary, so why not use this time for skills updating?

The CCE could look more closely at the course materials produced during their courses, and strive to publish materials which are more in line with the concept of Training Packages/Modules which can be updated with subsequent use. Currently, each instructor mimeographs notes which are usually highly technical, of questionable usefulness in the future, and sometimes excessively lengthy. Science simplification should be an aim for all materials and sessions at the CCE.

Ideally, training courses should include necessary, but unavailable, inputs e.g., seed of improved cowpea varieties during a cowpea production course, tools and equipment especially suited to woodstoves during stove training to facilitate production or application of knowledge gained during the courses.

4.2.2 Management training would be useful to the people who run the CCE. Course sponsors rightfully expect prompt and adequate service for their money. This implies firmer control of all support staff: drivers, photographer, secretaries, office help, etc., so that agendas/schedules can be adhered to, and unanticipated events easily accommodated.

Vehicles are always a bone of contention. At least one, the CCE vehicle, should be dedicated to the Centre, for all the arrangements and running around that have to be done before and during courses. The driver should also be on standby. Time and again field trips are one to three hours late because of vehicle, driver, petrol, or pack lunch problems which were to a great extent

foreseeable and avoidable. Hiring and firing policies need to be changed, and incentives for exemplary service introduced, for the Centre to be more professional.

4.2.3 The CCE needs a skilled programmer who will ensure that important topics get adequate funding, independent of institutions who come with their own ideas for workshops, etc. In addition, this person could critically review all course topic outlines and, perhaps, also edit the training materials before they are mimeographed, as mentioned in 4.2.1.

The Centre could also allot some of its income for special training that it considers important, for which outside funding may not be immediately forthcoming. A field test of some worthy training package may be one such activity that could be funded by the Centre itself if no donors present themselves.

4.3 Department of Agricultural Education & Extension (DAEE)

4.3.1 Speedy separation of DAEE and CCE as independent, albeit cooperating, entities of the University. One Head for both means less time for either unit. Moreover, then there would be no conflict in the use of resources and personnel.

4.3.2 The DAEE needs a Head with a positive and agreeable personality who would be better able to encourage high productivity and morale among all staff, both expatriates and Tanzanians. At the very least, solid management training of a person with good interpersonal skills is required. It helps to have Head who gives credit where it is due, and does not heap it all undeservedly on himself. "Dialogue" and "bottom-up" concepts need to be understood and practiced at the department.

4.3.3 It is to the DAEE's best interest to expand village work started by the USAID project staff both for training students and for encouraging reciprocal friendly relationships with neighboring villages. The DAEE Head does not seem to realize that villagers will soon tire of an endless stream of students disturbing them, when all they get is some "training" and good will. In other words, the DAEE should continue implementing small projects which require minimum capital input (if more is required, funding could be sought) but which fulfill some identified important need of certain villages. Short- and long-term projects can be implemented with different sets of students participating according to their skills and inclinations. There will always be a need for some funds for vehicle use, some equipment and supplies, even for the low-input projects. Of course, villages can be encouraged to contribute, in part or in whole, in supplying materials and certainly labor.

Scheduled monthly appointments with cooperating villagers (4-5 trips/ month to cover 2-3 villages per trip) are important. Villagers would then know when to expect the staff so that activities can be planned. These visits will not merely be to check on villagers and what they have done since the last meeting, but to acutally do something constructive.

Funds could be sought by DAEE to implement several village projects. Part of the funds can be revolving fund (e.g., buying and selling planting material at village request) and part can be consumables. Alternatively, the university can apply for a general research + action (not just research) grant

for which staff and senior students can apply. Emphasis should be on proposals which offer action-oriented research or projects (see 4.4.2 below).

4.4 Faculty at Morogoro

4.4.1 A course on university management for those interested in making university administration their career may be organized by the CCE. It will include not just the details of bureaucracy, accounting, budgeting, planning, proposal writing, project management, report writing, etc., but also how to deal with people so they are productive and happy. One or two periods per week may be sufficient if held over a long period of time, in order that staff will not have to be uprooted from their teaching. As an alternative or supplement, a 2-3 week training course in November-December may be appropriate.

4.4.2 The Faculty could apply for funds for research and action projects (See 4.3.3 above). University staff and advanced students can write short proposals requesting money to implement small projects and publish reports and teaching materials, and obtain necessary publications for the library on their topics. A committee at the Faculty could regularly review proposals, and fund worthy ones. Action-oriented projects or research that have an identified application, request, or usefulness in the country should be given priority.

[Copy of Original]

UNIVERSITY OF DAR ES SALAAM
FACULTY OF AGRICULTURE, FORESTRY AND VETERINARY SCIENCE,
DEPARTMENT OF AGRICULTURAL EDUCATION AND EXTENSION

REF. No. AEE/A/49

December 8, 1983

The Dean,
Faculty of Agriculture, Forestry and Veterinary Science
P.O. Box 3000
Chuo Kikuu
MOROGORO

Dear Professor Kyomo:

EXPIRATION OF UTAH STATE UNIVERSITY CONTRACT

This is to inform you that the Utah State University contract with USAID expires on December 31, 1983. Accordingly, Professor Sensenig and myself will be leaving the service of the University of Dar es Salaam as of that date.

The Agricultural Education and Extension Project continues until February 28th, 1984. Following my departure, any project-related matters should be directed to the USAID Agricultural Development Officer, Mr. Ken Lyvers.

The residual effects of the Project's Contractor efforts will be felt in quite specific terms at about the time the Faculty becomes the new university in July. Namely, USU is in the process of ordering and shipping some $87,000 in supplies and equipment in the following categories:

--vehicle spares for four DAEE and CCE vehicles
--audiovisual and office supplies for the CCE and DAEE
--a microcomputer for research, management and course materials production assistance
--800 new books and materials for the library
--essential items for Phase II of the CCE
--Extension equipment (camp beds, trailer, tents, etc.).

In addition, air conditioners, freezers, refrigerators, washing machines, and dryers used by the USU personnel will be shifted to the CCE for strengthening the support services to CCE users. These will be particularly useful in furnishing facilities planned in Phase II.

Upon our departure, the two vehicles reserved for the USU personnel as per the USAID Vehicle Agreement, Landrover TZ 53925 and Peugeot Station Wagon TZ 5702, will be handed over to the Faculty for continuation of the Project purposes.

A final report on the contractor's role in the Project will be written by USU's campus Coordinator, Dr. Pam Riley, and will likely be available in about five months.

Professor Kyomo
December 8, 1983
Page 2

I would like to express the gratitude of those serving on this Project over the past four years, to your office and its staff for the assistance and patience provided to make the Agricultural Education Extension Project the reasonable success we feel it is. I'm afraid this success has brought one unplanned result for you: the need to welcome and speak to a wide assortment of participants joining courses offered at the Centre for Continuing Education (CCE). This was one input which the USAID Project Paper did not anticipate!

All best wishes.

Sincerely,

Professor David Giltrow
Team Leader,
UTAH STATE UNIVERSITY TANZANIA PROJECT.

cc. The Vice-Chancellor
Chief Academic Officer
Chief Administrative Officer
Associate Dean, Academic
Associate Dean, Administrative
Head, Division of Agriculture
Head of DAEE Department and Acting Director, CCE
USAID Agricultural Development Officer, Dar es Salaam-Mr. Lyvers
Director, Office of International Programs and Studies, USU
Campus Co-ordinator, Utah State University
Professor Barton Sensenig III

[Copy of original]

THE UNIVERSITY OF DAR ES SALAAM

FACULTY OF AGRICULTURE, FORESTRY AND VETERINARY SCIENCE

Ref. CG/FA/91

December 30, 1983

Professor D. Giltrow
Team Leader
Utah State University
Tanzania Project
Morogoro, Tanzania

Dear Professor Giltrow:

RE: EXPIRATION OF THE UTAH STATE UNIVERSITY CONTRACT

Very many thanks for your letter Ref. No. AEE/A/49 of December 8, 1983 regarding the above matter.

It was very good of you to let us know the state of affairs concerning the project you have been leading during the past four years.

We have enjoyed very much your services and those of your fellow team members namely, Professors Moris, Brain, Brewer and Sensenig. Under your leadership we have managed to send for training fourteen Tanzanian staff, four of whom have already completed their Ph.D. degrees.

The Centre for Continuing Education was completed during your time and we have managed to run several short courses and seminars for extension, research and training staff from the Ministries of Agriculture, Livestock Development, and Natural Resources as well as for staff from agricultural quasi-government organizations.

I am very grateful to you for the list of items which have been received and that for items which have been ordered. Your recommendations on the use by the Department of Agricultural Education and Extension and the C.C.E. of equipment and vehicles have been noted.

Finally, please accept our sincere appreciation to you and your Colleagues for your contribution to the development and the launching of the curricular on agricultural education and extension. Your assistance in providing public address system for public meetings will be greatly missed by all the Morogoro Region's Community. We are going to miss very much your expertise in laying out photographs and illustrations in the Faculty Publications and displays.

Professor D. Giltrow
December 30, 1983
Page 2

Finally, let me take this opportunity and wish you, your colleagues and your families a happy and prosperous future.

Yours sincerely,

M. L. Kyomo
Dean

cc: The Vice-Chancellor
The Chief Academic Officer
The Chief Administrative Officer
The Chief Planning Officer
The Public Relations Officer
The Associate Dean (Administration)
The Associate Dean (Academic)
The Head, Division of Agriculture
The USAID Agric. Development Officer, Dar es Salaam
The Campus Co-ordinator, USU
The Director, Office of International Programs and Studies, USU
Prof. B. Sensenig III

ANNEX E

ITEMS RELEVANT TO EXTENSION REQUEST

1. Letter from Kyomo to Giltrow and Others
2. Letter from Kyomo to Vice Chancellor Kuhanga
3. Memo to Ken Lyvers, USAID from Giltrow and Lusk

UNIVERSITY OF DAR ES SALAAM

FACULTY OF AGRICULTURE, FORESTRY AND VETERINARY SCIENCE

P.O. BOX 643 — MOROGORO — TANZANIA

Telephone No. 2511-4

Telegrams: "UNIAGRIC" MOROGORO

Our Ref.: CG/FA/13

15th. August, 1983

Your Ref.:

Prof. C.L. Kombo
Associate Dean (Admin.)

Dr. A.L. Doto,
Associate Dean (Academic)

Dr. K.J.B. Keregero,
Head, Agric. Education and Extension
and Ag. Director CCE

Prof. D. Giltrow,
Team Leader,
USAID Technical Ass. Project. Agric. Education & Extension Dept. Morogoro

Dear Colleagues,

VARIOUS DEVELOPMENTAL PROJECTS AND POSSIBILITIES OF RECEIVING AID FROM THE USA GOVERNMENT

I attach my Memo on matters which I felt were important and had to be raised in our meeting with the USAID staff in Dar es Salaam on August 12, 1983. When I called at Luther House for the Meeting I was informed that the US Ambassador to Tanzania wanted to be present and therefore we had to hold the meeting in his office. He was very positive on most issues. A reply covering all the aspects raised in my Memo will be sent to us by the Agricultural Program Officer Dr. Ronald Harvey.

If there are other issues which you feel we should raise in future please do not hesitate to send those to me.

Yours sincerely,

M.L. KYOMO
DEAN

MLK/PANM.

DISCUSSION BETWEEN AID PERSONNEL AND THE DEAN OF THE FACULTY OF AGRICULTURE, FORESTRY, AND VETERINARY SCIENCE IN DAR-ES-SALAAM, AUGUST 12, 1983

1. PHASE I OF THE DEVELOPMENT OF THE CENTER FOR CONTINUING EDUCATION:

Phase I of the Development of the Center has been completed. The laying down of the Foundation Stone was expected to be made by the President of the United Republic of Tanzania. The U.S. Ambassador to Tanzania was expected to be present. The Vice-President or the Prime Minister will be requested to perform this role probably in September, 83. The U.S. Ambassador to be invited.

2. PHASE II OF THE DEVELOPMENT OF THE CENTER

The Architects have called in tender for the construction of Hostel, Kitchen, Dining and extension of the Teaching and Office Block.

3. REQUEST FOR EXTENSION OF PROFESSOR DAVID GILTROW'S STAY FOR ONE MORE YEAR

Prof. Giltrow is expected to be the last AID staff to leave when AID Project No. 621-0135 comes to an end on February 28, 1984. Most of the plans stipulated in the Project have or will be achieved except the production of teaching and extension materials. There is need to develop the mechanism for producing these materials in collaboration with MATIs, LITIs, Secondary Schools and Extension personnel. There is also need to draw up research programs on the type of teaching materials for extension and MATI staff. Furthermore, there is need to develop linkages between the Center and the Farming Systems Project. It is felt that Professor Giltrow could assist in these areas. The job description is attached.

4. NEED FOR TWO PEACE CORPS VOLUNTEERS

One for the Audiovisual Unit and the other for servicing of Audiovisual Equipment and other electronic equipment. The job descriptions for the two positions are attached.

5. TECHNICAL ASSISTANCE IN CONNECTION WITH THE DEVELOPMENT OF THE NEW UNIVERSITY:

A request is being made for team of three experts which will prepare a pre-planning project for a new Agricultural based University. A master plan for the University including the phasing out of physical facilities and development programs will be needed. The linkages between training, research and extension need to be spelled out. The establishment of an Experiment Station will be one of the major items to be considered and planned. There is need to send a four man team (KILIMO and UNIVERSITY) to the U.S.A. and India to study the linkage between training, research and extension and to recommend accordingly to the Government of Tanzania.

6. EXPANSION OF THE UNIVERSITY LIBRARY AT MOROGORO

The Ministry of Agriculture and the University agreed that the University Library at Morogoro should be a depository of all agricultural books and journals and that it should serve all the Agricultural Research Centers. Architectural drawings have been made but funds for the extension of the building are not available. A request is being made that the Expansion of the Faculty Library be funded from the PL funds.

7. THE DEVELOPMENT OF THE FACULTY AND ITS ROLE IN MANPOWER TRAINING FOR THE SADCC COUNTRIES

The Faculty is committed to enrolling at undergraduate and graduate levels foreign students from other African countries. There will be need to develop its facilities so that it may take more students from SADCC countries especially at graduate level.

[Copy from original]

Our Ref: CG/FA/112.

January 13, 1983

Your Ref:

The Vice Chancellor
University of Dar es Salaam
P.O. Box 33091
DAR ES SALAAM

u.f.s. The Chief Academic Officer
University of Dar es Salaam,
P.O. Box 35091
DAR ES SALAAM

Dear Mr. Kuhanga:

AGRICULTURAL EDUCATION AND EXTENSION
USAID PROJECT 621-0135

The USAID's Assistance to Tanzania by the USAID in developing the Department of Agricultural Education and Extension and the Centre for Continuing Education was expected to start in August, 1978 and be completed at the end of September, 1983 (a four year project). When the evaluation revision for the Project came to Tanzania, both KILIMO and us recommended very strongly the extension of the support for another two years (see our attached memorandum) on the matter. Unfortunately, the Evaluation Mission has recommended the extension for three months only.

We are writing to ask if you would kindly write the USAID asking for the Extension of the project for three months (October to December, 1983) in order to allow the USAID supported staff to complete the 1983 Academic Year.

Yours sincerely,

M. L. Kyomo
Dean

cc. Professor D. Giltrow
Department of Agricultural Education
and Extension
MOROGORO

MLX/PANM

[Copy from original]

AEE/A/58

December 11, 1982

TO: Ken Lyvers

FROM: David Giltrow, Chief of Party
Mark Lusk, Campus Coordinator
Agric. Educ. & Ext. Project

Sub: Budget and Extension Recommendation

Despite the budget amendment of October 1982, our informal assessment of expenditures and projected costs under the contract indicate that we could extend the project beyond September 14, 1983 as was recommended by the Evaluation Team. At the minimum their recommendation of a three month extension to December 14, 1983, should be accepted. To end the project in September would interrupt courses in midstream which are taught by Project Faculty. In addition final examinations will need to be graded in November by project personnel.

We would strongly suggest however that an extension of six months is even more reasonable, that is to March 14, 1984. With Tanzanian trainees returning to accept project responsibilities, the project faculty would be freed to pursue other activities consistent with the recommendations of the evaluators; activities which have been restricted by factors beyond their control such as the delays in appointing local staff counterparts, delays in the return of trainees, and delays in construction and acquisition of supplies.

An extension of six months would make the attainment of several key project objectives both more likely and feasible. These include: 1) the full development of the Audio Visual Center, 2) the revision, consolidation, and reduction of the DAEE Curriculum, 3) the production of additional reports, teaching manuals, documents, and extension materials, and 4) an effective transition of roles to Tanzanian counterparts.

Note that after September 14, 1983, Prof. Brewer will depart and his position will be assumed by a Tanzanian. We feel that with the reduced manpower, sufficient funds would be made available for a six month extension (equivalent to a one year extension of the PACD) beyond the present contract termination of September 14, 1983.

ANNEX F

LIST OF COMMODITIES PURCHASED BY USU

SUPPLIES AND EQUIPMENT ORDERED FOR CCEA/DAEE MOROGORO IN LAST SIX MONTHS OF PROJECT

I.	Vehicle Parts and Equipment (USAID to order)	$12,000.00
II.	Office Supplies and Equipment	
	IBM Selectric III	798.00
	Various Typewriter elements	160.00
	Mimeo paper	1,430.00
	Newsprint tablets	101.10
	Typing correction fluid and thinner	44.64
	Wire staples	324.20
	Paper rolls and tape for telex	170.91
	Typewriter ribbons, lift off tape and accessory holder	463.05
	2 Master drums, toner and developer	773.25
	Erasers, chalk and resurfacing paint	258.55
	2 Gestetner Stencil duplicators	2,850.06
	Stencils, ink, binding strips, correction fluid, backing sheets	4,183.60
	Subtotal	$11,557.36
III.	Photographic and Audiovisual Supplies	
	Assorted Sized Funnels, scale	80.50
	Rechargeable batteries and charging units and other batteries	661.91
	Connecting & coiled sync cords	96.11
	Adapters	100.47
	Gossen attachments	248.97
	Throw lens	276.00
	Kodak film	1,323.36
	Kodak processing mailers	550.08
	Film processing kits, slide mounts, enlarging paper	846.45
	Developing materials (washers, chemicals, easels, timers, etc.	1,700.05
	Printing plates	1,030.00
	Camera lenses, eye cups, attachments 268.83	
	Projectors and stands	609.20
	Subtotal	$8,305.43

IV.	Learning Resources: Books and Journals	$10,557.85
V.	CCEA/DAEE Misc. Supplies	
	Stoves	$1,056.00
	Aluminum Screening	317.00
	Locks	100.00
	2 Floor polishers and pads	1,256.37
	2 Air conditioners	865.27
	Laundry faucets and copper connections	38.42
	12 Fire extinguishers	258.60
	Subtotal	$3,891.66
VI.	Computer Hardware, software and supplies	
	Apple IIe	$1,107.00
	Key pad	119.96
	System fan	68.00
	Interface cards	354.00
	Disk drive unit	981.00
	Power supply	160.00
	Printer	1,290.00
	Print buffer	190.00
	Surge protector	174.00
	Spare parts and service	684.00
	Cleaning kits	19.50
	Paper	1,500.00
	Printer ribbons	126.00
	Software Programs: Word processing program, Statistics program, Data base program, Accounting/Bookkeeping	764.00
	Books and tutorial programs	282.00
	2 Premium Softcard IIe	710.00
	Apple IIe Plug n' Play	115.00
	2 12" monitor	298.00
	Dot matrix printer with tractor feed	504.00
	Ribbons	350.00
	Diskettes	450.00
	Software programs: Word processing, File program, Spreadsheet, Scheduling timetable, Project management and planning, Graphics generator, Various utility, Lost Data	1,398.00
	Subtotal	$11,644.46

VII. Extension Field Equipment

6 4-person tents and extra pole sets	945.00
4 3-person tents	300.00
35 camvas campbeds	698.25
20 camping foam pads	255.00
40 Sleeping bags, 50 liners, and 3 tarps	2,504.35
10 Hurricane lamps, mantles and globes	469.30
Subtotal	$5,171.90
GRAND TOTAL	$63,128.66

ANNEX G

OUTPUTS

1. Project Bibliography
2. CCEA Courses Offered
3. Training Packages Developed
4. Recent AV Unit Activities

PROJECT BIBLIOGRAPHY

The following bibliography represents the diverse range of publications produced as the result of Project activities in four areas:

A. Textbooks, research and scientific reports.
B. Teaching manuals, training guides, and teaching packages.
C. Ph.D., ED.S. and M.Sc. dissertations and theses, DAEE student research.
D. Project administration and consultancy reports.

The time span is from 1980 projected into 1984 when various Ph.D. dissertations will be completed, and teaching packages are produced following the arrival of project-purchased materials for typing and duplication. Those items which are drafted but not reproduced or are in the process of being completed, are indicated by an asterisk (*).

Access to the cited items varies greatly depending upon the nature of the item. For example, 15 Cowpea Training Packages were produced, one of which is at the CCE. Several publications are reproduced in increments of a thousand and are available from the publishers (e.g., Proceedings of the Resource Efficient Farming Methods Workshop, Rodale Press). Others are in handwritten draft form awaiting editorial work, typing and stencil duplication. Ph.D. dissertations are available on microfilm from University Microfilm, Inc. In general, most items are available in at least single copy form at the CCE/DAEE offices. All items have one common ingredient: they required considerable time, thought, and energy on the part of the authors.

A separate listing at the end indicates those Faculty members whose various research publications were enhanced by photographic and/or graphic arts assistance from the Audiovisual Unit. Not listed are the approximately 120 third year and M.Sc. Special Research Projects and theses which contain photographs and/or graphic arts produced by the AV Unit.

A. Textbooks, Research and Scientific Reports

Anandajayasekeram, P.; Ndunguru, G. J. and Lupanga, I. J. (eds.) "Proceedings of the Conference on Farming Systems and Farming Systems Research in Tanzania." April 14-15, 1981. Arusha. 234 pp. (CCE Activity; Publication Funded by Project)

Brain, J. "Community Development in Forestry." In: Forestry Division Paper No. 20, 1981 (DAEE)

Brain, J. "Witchcraft in Development." Professorial Inaugural Lecture. University of Dar es Salaam, 1981. (DAEE)

Faculty of Agriculture, Forestry and Veterinary Science. "Proceedings of Workshop on Resource-Efficient Farming Methods." May 16-20, 1983. Morogoro, Tanzania. Rodale Press, Emmaus. PA., 1983. (CCE Publication funded by Project)

Giltrow, D. "Improving Teaching and Learning with Audiovisual Materials: Plans for Local Production and Services." Paper read at Seminar on Methodology of Biomedical Subjects, September 30 - October 3, 1981. Morogoro. (CCE)

Giltrow, D. "Making Sense of Still Pictures and Images." Paper read at Seminar on Methodology of Biomedical Subjects. September 30 - October 3, 1981. Morogoro. (CCE)

Giltrow, D. "Some Guidelines for Forestry Extension in Villages." Seminar on Community Forestry in Kilosa District. October 13-14, 1983, 4 pp. (CCE)

Giltrow, P. and Giltrow, D. "Films of the Colonial Film Unit." Invited paper read at British Interuniversities Film and History Conference. London, April 8-12, 1981. (DAEE)

Giltrow, D. "Thinking About a Communications Textbook." Paper presented at Sixth National Council for Agric. Education Annual Conference, February 24-26, 1982. Tengeru. (DAEE)

Gonsalves, J. "Production of Training Packages/Modules for Farmer Training." Presentation (DAEE)

*Kenny-Jordan, C., Stymne, B. and Giltrow, D. Forestry Extension Reference Manual, FAO/Rome. In Press. 425 pp. in draft. (CCE)

Mattee, A. Z.; DeVries, J.; Giltrow, D.; Mosha, H. and Rimstad, S. "Tools and Indicators for Evaluating the Impact of the Agricultural Education Programme in the Tanzanian School System." DAEE Working Paper 80.2. (DAEE)

Moris, J. R. Managing Induced Rural Development. Indiana University International Development Institute. Bloomington, Ind. 1981, 190 pp. (DAEE, written while Chief-of-Party and USU Campus Coordinator)

Moris, J. R. "Farming Systems in Tanzania". In: Anandajayasekeram, Ndunguru and Lupanga (eds.), 1981, pp. 135-143. (CCE)

Moris, J. R. Resource Materials on Tanzanian Rural Development: A Comparative Bibliography," 1982, 238 pp. (USU)+.

Seenappa, M. A Guide to Technical Report Writing. 48 pp. (CCE to publish 1984, D. Giltrow, ed.)

+This Bibliography is available from the Department of Sociology, Utah State University, Logan, UT 84322, USA, for $12 (includes shipping and handling).

Sensenig, B. "Analysis of Musoma Resolution in Relation to Faculty of Agriculture, Forestry and Veterinary Science," Faculty Board Report. 1983 (DAEE)

Sensenig, B. and Giltrow, D. "The New Centre for Continuing Education at Morogoro." Paper presented at Sixth National Council for Agriculture Education Annual Conference, February 24-26, 1982, Tengeru (CCE)

Sensenig, T. "Status of Stoves Research at Chuo Kikuu, Morogoro." 10 pp., 1983. (CCE)

Sensenig, T. "Training Needs Approaches on Woodfuel Utilization Technologies (Tanzania): Review and Suggestions." Renewable Energy and Environmental Conservation Association Planning Session. Nairobi. December 4-10, 1983.

B. Teaching Manuals, Training Guides, Teaching Packages

*Bakobi, B.L.M. Animal Traction. 56 pp. (DAEE)

*Chilimboyi, D. I. Poultry Management in MATIs. 74 pp. (DAEE)

Cowpea Training Package. Multi-media with Technical Manual, Slides, Audiocassette, Charts. USU Instructional Products Institute and Ilonga Research Institute. Editorial and Field Testing Activities by B. Sensenig (DAEE/CCE funded by USAID Agric. Research Project).

Gonsalves, J. F. Trainer's Guide to Small-Scale Biointensive Food Production. (The French Intensive/Biodynamic Method) 38 pp. (CCE, D. Giltrow, ed. Preliminary version).

*Mgunga, A. S. Modern Coconut Farming Techniques. 56 pp. (DAEE)

*Mmbaga, T. A. Proper Pig Husbandry. 94 pp. (DAEE)

*Mushy, I. K. Cotton Pests and Control. 43 pp. (DAEE)

*Omari, A. M. Vegetable Production for Schools. 45 pp. (DAEE)

*Rukiko, K. M. P. Correct Use of Pesticides. 30 pp. (DAEE)

*Rutatora, F. D. Village Tractor Maintenance, 57 pp. (DAEE)

*Rwegoshola, D. E. Irrigation Techniques and Their Practices for MATI 1st Year Irrigation Diploma Course. 109 pp. (DAEE)

Sensenig, B. Improved Cultivation of Field Beans in Tanzania, 1983 (CCE). Final revision to be printed June, 1984.

Sensenig, B. Psychological, Social and Cultural Factors in Extension. (Currently under review by MATI's.)

Sensenig, T. Citrus Production: A Training Package. 1983 (CCE). Final revision printed April, 1984.

Sensenig, T. Let's Solve Our Fuelwood Problem: Stoves and Trees. A Training Package. 1983. (CCE)

Smellie, D. and Eastmond, Jr., J. N. Module Outlines for Media Utilization, Production and Evaluation. 1981. (CCE).

*Wambura, R. M. Major Organic Manures for Extension Workers. 65 pp. (DAEE)

(See also D. I. Chilimboyi, and Madalla, A. N. under Section C. Ph.D., ED.S., M.Sc. and DAEE Student Research.)

C. Ph.D., ED.S. and M.Sc. Theses, DAEE Student Research

*Bakobi, B. L. M. "Assessment of the Contribution of the Top-Down and Bottom-up Approaches on the Performance of Communal Development Projects." 1982. (DAEE)

*Chilimboyi, D. I. "The Development of an Extension Training Package in Compost Making for MATI Tutors in Tanzania." 1983. 103 pp. (DAEE)

*Dihenga, H. O. "A Location-Allocation Planning Alternatives for a Cashew nut Industry in Tanzania." Ph.D. Dissertation, Michigan State, 1984.

*Gonsalves, J. F. "Farmer Education in Tanzania" (Preliminary Title). Ph.D. Dissertation, Cornell University. 1984 (Former DAEE Research Associate, 1982).

*Kavishe, P. Vocational Education Topic. (Exact title not communicated at this writing). Ph.D. Research University of California (Riverside), 1984.

Madalla, A. N. "A Process for Developing Instructional Modules Based on Technical Data." ED. Spec. Practicum. Utah State University, 1982. DAEE

Maeda, E. E. "A Study of the Action of Bovine Cathepsin D on Intramuscular." Ph.D. Dissertation. Utah State University, 1983.

Mattee, A. Z. "The Impact of the Tanzanian Secondary School Agricultural Program on Student's Attitudes and Aspirations and the Factors which may Influence the Effectiveness of the Program." Ph.D. Dissertation. University of Wisconsin, 1983. (DAEE)

*Mgunga, A. S. "Coconut Production and Extension. A Case Study of the Impact of Extension Services on Small Holders' Coconut Production in Eight Selected Villages of Tanga and Pangani Districts," 1983 (DAEE)

*Mlambiti, M. E. "Agricultural Sector Analysis for Kilimanjaro Region: A Basis for Decision Making and Planning." Ph.D. Dissertation. Univ. of Dar es Salaam, 1984. (Project supported Dissertation research analysis and writing, 1982).

*Mmbaga, T. A. "A Study of Village Leadership and How it Influences." 1983 Village Development Projects. (DAEE).

*Mrema, J. P. "Phosphate Sorption by Some Tanzanian Soils and the Effects of the Absorbed Phosphate on the Surface Changes and Other Properties of the Soils." Ph.D. Dissertation, University of Dar es Salaam, 1984. (Project supported advanced studies in USA, 1980-81).

Mushi, A. (Title?) M.Sc. Thesis, Agric. Educ. Dept. University of Wisconsin, 1982.

*Mushy, I. K. "Testing the Effectiveness of Different Teaching Aids Among Different Secondary School Classes, 1983 (DAEE)

*Mvena, Z. S. K. "Labor Organization in Transition: A Case Study of the Social Consequences of Modern Technology in Selected Villages in Njombe District, Tanzania." University of Missouri, 1984 (DAEE).

*Omari, A. M. "Integration of Theory and Production in Secondary Schools as a Measure of Success of Education for Self-Reliance," 1982 (DAEE)

*Rukiko, K. M. P. "Socio-cultural Factors Affecting Communal Development Projects," 1982. (DAEE)

Rutachokozibwa, V. "Perceptions of School Farms in Iowa As An Educational Tool for Vocational Agric. With Implications for Tanzanian School Farms." M.Sc. Thesis. Iowa State University, 1981 (DAEE)

*Rutatora, F. D. "Socio-cultural Factors which Influence Agricultural Extension Teaching and Learning." 1983 (DAEE)

*Rwegushola, D. E. "An Assessment of the Impact of Communal Irrigation on Farmers' Agricultural Production. A Case Study of Mlali Village Small Scale Irrigation Scheme in Morogoro District, 1983 (DAEE)

*Semu, E. "Effluent Mercury Absorption by and Movement in Soils and Uptake by Plants." Ph.D. Dissertation. University of Dar es Salaam, 1984 (Project supported advanced studies in USA, 1980-81).

Sibuga, K. (Title to come) M.Sc. Thesis. Univ. of Illinois, Agricultural Education Department 1983.

Wambura, R. M. "A Study of the Communication Process at Village Level." 1983 (DAEE)

D. Project Administration and Consultancy Reports

Brain, J. End of Tour Report. 1981 USU/Morogoro.

Brewer, C. H. End of Tour Report. 1983 USU/Morogoro.

Eastmond, Jr. J. N. and Smelli, D. Report of Consultant Visit to the Faculty of Agriculture, University of Dar es Salaam, Morogoro Campus. August 9-30, 1981. Morogoro 1981 (CCE Consultancy Report).

Giltrow, D. Project Semi-Annual Reports.
1. April 1 - September 30, 1980
2. October 1, 1980 - March 31, 1981
3. April 1 - September 30, 1981
4. October 1, 1981 - March 31, 1982
5. April 1 - September 30, 1982
6. October 1, 1982 - March 31, 1983
7. April 1 - December 31, 1983.

Office of International Programs and Studies, USU, Logan, Utah. 1980-83.

Giltrow, D. Report to USAID/Arusha on Audiovisual Equipment and Supplies, Monduli Rural Development Training Centre. June 1981, 15 pp. (CCE).

Giltrow, D. End of Tour Report. 1983, USU/Morogoro.

Hess, O. and Wesselmann, R. Evaluation of Agric. Education and Extension Project. USAID Dar es Salaam. 1982.

Long, G. Report of Consultant Visit: D. Agricultural Education and Extension. Morogoro, 1981. (DAEE Consultancy Report).

Moris, J. Project Semi-Annual Report: October 1, 1979 - March 31, 1980. Office of International Programs and Studies, USU, Logan, Utah. 1980.

Sensenig, B. End of Tour Report. 1983 USU/Morogoro.

Sensenig, T. Final Report: Consultancy for CCE. 1983. (CCE)

E. Staff Assisted by AV Unit in Their Research and Scientific Publications

Animal Science Department: Prof. M. L. Kyomo
Mr. B. A. Mtenga
Dr. M. Mgheni

Crop Science Department:	Prof. C. L. Keswani Prof. A. K. Karel Prof. R. K. Jana Dr. B. J. Ndunguru Dr. A. L. Doto Dr. A. N. Mphuru Dr. N. A. Mnzava Dr. J. M. Teri
Food Science Department:	Dr. A. Haq Dr. M. Seenappa Mr. Bangu
Forestry Division:	Prof. J. Hall Prof. J. Redhead Dr. J. Maghembe
Soil Science Department:	Prof. M. S. Chowdhury Mr. E. Semu Dr. J. Semoka
Rural Economy Department:	Dr. P. Anandajayasekeram
Veterinary Science Division:	Prof. R. Tucker Ms. F. Jayakeran Dr. J. Monrad Dr. Mgongo Dr. P. Msolla Dr. Semuguruka Dr. B. Kessy

CCEA COURSES

	Topic	Date	Sponsors	Number Attending
1.	Improved Teaching Methods Seminar for FAF (assisted)	May, 1980 1 week		35-40
2.	Symposium on Inter-cropping for Semi-Arid Areas (assisted)	August, 1980	Crop Science Department, FAF	80
3.	Community Forestry Workshop	December, 1980 1 week	(Held in Arusha)	25
4.	Course in How to Teach Technical Subjects to Farmers (assisted)	Early 1981	Tanga Integrated Rural Development Project (Held in Tanga)	20
5.	3 Courses dealing with Family Resources (assisted)	1981	FAO	?
6.	Extension Management Workshop for DADO's and RADO's (assisted)	February, 1981 1 week	DAEE and Uyole Agriculture Center (Held in Mbeya)	24
7.	Farming Systmes and Farming Systems Research in Tanzania Conference	April 14-16 1981	Tanzania Agricultural Economic Society (Held in Arusha)	180
8.	Pasture Research Course	1981 - 4 weeks	FAO	24
9.	Village Leaders/ Farmers Workshop	May, 1981 4 days	DAEE/CCE (Held at Bigwa Folk Development College, Morogoro District)	43
10.	Agromechanization Course Study Tour	November 2 - December 12, 1981 2 weeks		17 35
11.	Workshop on Agro-mechanization for Agricultural Secondary School Teachers	December 14, 1981 - January 15, 1981		24

12.	Agromechanization and Accounting Courses for NAFCO Farm Managers	April 5-17 1982		10
13.	Cowpea Production Workshop for Village Extensionists	April 19-23 1982	Ilonga Agricultural Research Station	12
14.	Rural Economy and Extension Short Course for MATI Tutors	May 30 - June 12, 1982		?
15.	DADO/RADO Workshop (assisted)	June, 1982 1 week	(Held at Uyole)	?
16.	Workshop on Coding Rural Survey D (consultin)	July, 1982 4 days	(Held at Ruaha Rural Development Training Center, Iringa)	12
17.	Forest Research Training Course	November 8 - December 13, 1982	Canadian IDRC (Held at the CCEA*)	20
18.	Livestock Extension Methods for Regional Livestock Development Officers	January 16-26 1983	Ministry of Livestock Production	18
19.	Short Course on Coconut Production and Extension (I)	March 2-14 1983	National Coconut Development Programme (NCDP)	20
20.	Short Course on Cotton Agronomy, Economics and Extension	March 13-26 1983	Tanzania Cotton Authority	24
21.	Chemistry Workshop	April 14-16 1983	Ministry of Education	7
22.	Short course on Farm Management and Field Operations for Senior Farm Managers	April 17-May 1 1983	National Agricultural Food Cooperation (NAFCO)	12
23.	Short Course on Coconut Production and Extension (II)	May 2-14 1983	National Coconut Development Programme (NCDP)	13

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* This was the first use of the CCEA facilities; three years after the start of the Project!

24.	Workshop on Resource Efficient Farming Methods in Tanzania	May 16-20 1983	TARO, USAID	320
25.	Agricultural Tutors Training Course	June 6-August 26 1983	Ministry of Agriculture	12
26.	Coconut Production and Extension (III)	August 29 - September 10 1983	NCDP	24
27.	Labour and Social Welfare Workshop	Mid-August 1983 (4 days)	Ministory of	50
28.	Farmer Training Workshop	September 12-16 1983	Kilimo	38
29.	Workshop on Field Programme Management: Food and Nutrition	September 18-30 1983	FAO/Kilimo	35
30.	Workshop on Chemistry	October 9-15 1983	Education	7
31.	Agroforestry (Forestry & Energy Seminar)	October 12-15 1983	Irish Project/Kilosa	10
32.	Coconut Production and Extension (IV)	Ocotober 17 - November 3, 1983	NCDP	24
33.	Armyworm Identification and Control Workshop	October 25 - November 4 1983	Ilonga Research Station	30
34.	Peace Corps	October 30 - November 12 1983	USA Office	15
35.	Coconut Production and Extension (V)	November 14 - December 1 1983	NCDP	24
36.	National Workshop for Women Participation in Agricultural Credit and Banking Services	December 2-8 1983	FAO	25
37.	Rodent Control Workshop	December 5-16 1983	Research Institute	30
38.	Agromechanization	December 11, 1983 January 8, 1984	Education	12

TENTATIVE LIST OF 1984 CCEA PROGRAMS

Compiled by B.L.M. Bakobi

Date	Programmes	Sponsor
11/12 - 8/1/84	Agromechanization: Secondary School Teachers (20 participants)	ELIMU
16/1 - 28/1/84	Tutorial Workshop-Kiswahili: FDC Tutors, Agric. Field Workers (24)	NCDP
5/2 - 26/2/84	Extension-Principles/Methods: DLDOs	MIFUGO
18/3 - 25/3/84	Refresher Course: FIELDWORKERS (24)	KILOSA/IRISH GOVT.
1/4 - 8/4/84	Chemistry Workshop: Secondary School Teachers (7)	ELIMU
8/4 - 29/4/84	Field Programme Management: Food & Nutrition-Pretesting: NUTRITIONISTS & PMO's Office (24)	KILIMO/PMO Office
6/5 - 26/5/84	Irrigation & Agronomy: FIELD WORKERS	KILIMO
27/5 -18/8/84	Agricultural Tutors Training Course: MATI TUTORS (12)	KILIMO
26/8 - 6/10/84	Agricultural Research: RESEARCHERS & FIELD WORKERS (35)	FAO
14/10 - 27/10/84	Coconut Production & Extension: FIELD WORKERS (24)	NCDP
18/11 - 1/12/84	Coconut Production & Extension: FIELD WORKERS (24)	NCDP

Department of Agricultural Education and Extension

Development of Teaching Packages as of Sept. 1983

(COMPILED BY A. N. MADALLA)

Title of Teaching Package	From	To	Author	Stage of Development
Training Package for Cowpeas in Tanzania	Sept. '81	May '83	USU/Ilonga	- Completed as part of Educational Specialist degree (Ed.S.) in Instructional Technology; Utah State University. - Already distributed to all MATIs. - To be sent to Ministry of Agriculture/TARO
A Process of Developing Instructional Modules Based on Technical Data Plus: A Training Package on Production of Dried Beans in Utah	May '82	Dec. '82	Madalla, A.N.	- Completed as part of Educational Specialist degree (Ed.S.) in Instructional Technology; Utah State University. - To be adapted for local use.
Forestry Extension Manual	June '82	Nov. '83	Giltrow, D./ Kenny-Jordan/ Stymne	- Writing almost complete. - Publication and distribution by FAO - Expected June 1984.
Manual on Oxenisation	Aug. '82	Nov. '82	Bakobi, B.L.	- Completed as part of AEE 313 - Possibility of being used by the Ministry of Agriculture and/or Ministry of National Education for Secondary schools
Horticultural seed Germination			Omari, A.	
Safe use of Pesticides			Rukiko, M.P.	
Small Scale Biointensive Food Production	Dec. '82	June '83	Gonzalves/ Giltrow, D.	- Preliminary review distributed June '83. - On its final editing stage. - Possibility of being adopted for use.
Improved Cultivation of Field Beans in Tanzania	Jan. '83	Nov. '83	Sensenig, B.	- Second draft was distributed and reviewed at Farmer Training Programme Workshop.
Psychological, Social and Cultural Factors in Extension.	Jan. '83	Nov. '83	Sensenig, B.	- First draft.
Wood Conservation: Stoves and Afforestation	Jan. '83	Nov. '83	Sensenig, T.	- First Draft. - Carried out first field-test

				MATIs. - To be sent to Ministry of Agriculture/TARO
A Process of Developing Instructional Modules Based on Technical Data Plus: A Training Package on Production of Dried Beans in Utah	May '82	Dec. '82	Madalla, A.N.	- Completed as part of Educational Specialist degree (Ed.S.) in Instructional Technology; Utah State University. - To be adapted for local use.
Forestry Extension Manual	June '82	Nov. '83	Giltrow, D./ Kenny-Jordan/ Stymne	- Writing almost complete. - Publication and distribution by FAO - Expected June 1984.
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Horticultural seed Germination			Omari, A.	
Safe use of Pesticides			Rukiko, M.P.	
Small Scale Biointensive Food Production	Dec. '82	June '83	Gonzalves/ Giltrow, D.	- Preliminary review distributed June '83. - On its final editing stage. - Possibility of being adopted for use.
Improved Cultivation of Field Beans in Tanzania	Jan. '83	Nov. '83	Sensenig, B.	- Second draft was distributed and reviewed at Farmer Training Programme Workshop.
Psychological, Social and Cultural Factors in Extension.	Jan. '83	Nov. '83	Sensenig, B.	- First draft.
Wood Conservation: Stoves and Afforestation	Jan. '83	Nov. '83	Sensenig, T.	- First Draft. - Carried out first field-test
The Development of Extension Training Package in Compost-Making in MATIs	Jan. '83	Oct. '83	Chilimboyi, D.I.	- Completed as Special Project. - Awaiting final assessment. - Possibility of being adopted for use by the Ministry of Agriculture and/or the Ministry of Education for use in Secondary Schools

Title of Teaching Package	From	To	Author	Stage of Development
Poultry Management in MATIs	Jan. '83	Oct. '83	Chilimboyi, D.I.	- Completed as part of AEE 313. - Awaiting final assessment. - Possibility of being adopted for use by the Ministry of Agriculture and/or Ministry of Education for use in Secondary Schools
Proper Pig Husbandry			Mbaga, T.A.	
Modern Coconut Farming			Mgunga, A.S.	
Cotton Pests and Control			Mushi, I.K.	
Village Tractor Maintenance			Rutatora, D.F.	
Irrigation Techniques and their Practices in Agriculture for MATIs			Rwegoshola, D.E.	
Major Organic Manures			Wambura, R.M.	
Citrus Production	April '83	Nov. '83	Sensenig, T.	8 lessons completed out of 12 in the first draft

AUDIOVISUAL SERVICES PROVIDED

July 1, 1982 - June 30, 1983

16 mm Projector

Department/Agency	No. of times used
Animal Science	2
Agricultural Education & Extension	20
Crop Science	1
Forestry	2
Veterinary Science	10
Development Studies	1
Administration	1
C.C.M	10
Schools and Other Organizations	5
Total	52

Slide Projector

Animal Science	6
Agricultural Education & Extension	30
Agricultural Engineering	10
Food Science & Technology	12
Soil Science	1
Forestry	29
Veterinary Science	49
Total	137

Overhead Projector

Animal Science	18
Agricultural Education & Extension	56
Crop Science	4
Soil Science	27
Forestry	45
Veterinary Science	66
Total	216

Filmstrip Projector

Agricultural Education & Extension	56

Opaque Projector

Agricultural Education & Extension	56

Public Address System	No. of times used
Animal Science	3
Agricultural Education & Extension	1
Soil Science	1
Forestry	1
Administration	3
C.C.M.	20
Schools and Other Organizations	39
Total	68
Cassette/Tape Recorder	
Agricultural Education & Extension	12
Electronic Stencil Cutter	
Agricultural Education & Extension	11
Crop Science	6
Soil Science	1
Forestry	2
Total	20

ANNEX H

EXAMPLES OF SHORT-COURSE ACTIVITY

1. Proposed Shortcourse for APVDP
2. Cowpea Workshop Schedule
3. Cowpea Workshop Field Report
4. Report on Regional Livestock Development Short Course

PROPOSED SHORT COURSE FOR APVDP
Preparation of basic extension aids for technical officers.

Centre for Continuing Education
Faculty of Agriculture, Forestry & Veterinary Science
Box 643, Morogoro

Overview: Given the shortage of specialists to produce extension and training materials, technical officers need to know how to draft simple, basic printed extension materials and training aids. These can then be given to artists and printing specialists for final production. The critical stages are:

1. selecting content
2. using language appropriate for target audience
3. providing sufficient illustrative examples
4. pre-testing rough draft
5. final production

In a workshop setting, emphasis will be placed on actually creating draft material useful to the officer's work. In addition, the expansion of a limited edition, single page fact sheet for junior officers to a mass produced extension package for farmer level use can be discussed and implemented. The importance of pre-testing will be stressed.

It is not expected that "camera ready" versions of training and extension materials will emerge from the workshop. Most likely, artwork and lettering would remain for later completion. But a major goal of the workshop would be to increase the confidence of the participants in their ability to produce useful materials in a comparatively short time.

Suggested content:

-identifying topics appropriate for extension/training aids
-specifying objectives and defining target audience
-choosing the medium and production process
-planning the content of the material (painful choices)
-layout, design, typography
-illustrations: style, technique, perception questions
-limitations of the reproduction process (stencil, offset, silkscreen)
-making a rough draft (or drafts--several versions possible)
-testing for accuracy, acceptance, understanding
-revisions
-final version selecting and sending for completion
-printing/reproduction considerations
-adaptation from one form (reference sheet) to another (picture sequence poster/flip chart/farmer level handout)
-tips for shortcutting some of the above

Course Design:

The course will be tailored to suit the needs of the 5 to 15 participants, who would be in the medium/higher technical grades, without sector bias. It is assumed that some will be more experienced with extension material production than others, therefore individual work will be stressed if the numbers are small and two/three person teams used if the group is large.

There will be a mixture of theory using ideal examples together with the realistic, practical production necessary for Tanzanian conditions. It is hoped that a variety of examples of past efforts will be available to demonstrate the range of production possibilities as well as provide the basis for critical comments.

A field trip to a printing company (Tanzania Litho) in addition to demonstrations of simpler printing methods (including electronic stencil cutting) will provide a better understanding of the technical reproduction issues.

Simple sketching exercises will be included to build confidence in making first draft sketches before going to an artist. The participants should be able to discuss and apply principles of design, make rough drafts, and have some familiarity with graphic/printing reproduction processes by the end of the short course. We will, of necessity, treat the workshop as experimental and thus pay close attention to participants' evaluation of the course. Such a workshop would likely be repeated at another time for a different group.

Course instructors/Facilitators:

- Prof. Don Smellie, Chairman, Dept. of Instructional Technology, Utah State University
- Prof. Nicholas Eastmond, Media Evaluation Specialist, Dept. of Instructional Technology, Utah State University
- Prof. David Giltrow, Centre for Continuing Education, Faculty of Agriculture, Morogoro

Sponsor's responsibilities:

- selection of participants; biographic summary on each as related to course for benefit of instructors
- physical facilities: meeting room, overhead projector, chalkboard, paper, felt pens, other as needed
- participants' accommodation
- arrangement of tour(s) to printing/reproduction facilities, including transport
- coffee/tea breaks
- providing local examples of good and bad extension materials in current use or no longer used
- additional local consulting support to serve as ongoing contact for follow-up (such as artist, photographer, designer)

CCE responsibilities:

- provision of facilitators/instructors
- primary organization of content and syllabus
- transport and accommodation of facilitators/instructors
- preparation of handouts, instructional media, demonstration materials
- draft version of course evaluation instrument (final version after approval of sponsor)
- critique of participants' performance (if required by sponsor)

Planning timetable: (to be filled in later)

-suggested dates: August 31 - September 4, 1981
-selection of venue:
-selection of participants:
-first draft, detailed syllabus:
-final draft, detailed syllabus:
-arrangement of tour(s):
-coordination with Smellie/Eastmond/Giltrow/Walton:
-accommodation arranged: participants and facilitators:
-draft version of teaching materials:
-accumulation of past and present examples:

COWPEA WORKSHOP

DAY/TIME	ACTIVITY (CONVENOR)
MONDAY APRIL 19	
10:00-11:00	REGISTRATION (Bart Sensenig) In the Department of Agricultural Education and Extension Old Library #1 Background (20 min)
11:00-11:30	WELCOME (I. J. Lupanga & Bart Sensenig)
11:30-12:30	VILLAGE COWPEA CULTIVATION (Workshop Participants)
12:30-2:00	LUNCH
2:00-3:30	INTRODUCTION (Bart & Trina Sensenig) (Lecture Theatre #5) #2 General Information (45 min) #3 Idea Acceptance (35 min)
3:30-3:45	BREAK
3:45-5:00	SOIL PREPARATION (J. P. Mrema & E. Semu) #4 Seedbed Preparation (30 min) #5 Soil Samples (40 min)
5:00-7:00	WELCOMING RECEPTION (Bart & Trina Sensenig)
TUESDAY APRIL 20	
8:00-9:45	COWPEA VARIETIES & MANAGEMENT PRACTICES (B. Ndunguru & J. Teri) #6 Cowpea Varieties (25 min) #8 Planting (40 min) #9 Spacing (25 min) #10 Weeding (15 min)
9:45-10:00	BREAK
10:00-11:00	FIELDWORK (J. Teri)
11:00-12:30	TEACHING COWPEA VARIETIES & MANAGEMENT PRACTICES (Trina Sensenig)
12:30-2:00	LUNCH

DAY/TIME	ACTIVITY (CONVENOR)
2:00-3:00	INSECTS AND INSECTICIDE (A. K. Karel) (Lecture Theatre #5) #11 Insects (15 min) #12 Insecticides (45 min)
3:00-3:15	BREAK
3:15-5:15	INSECTS & INSECTICIDE (A. K. Karel) #13 Insecticide (60 min) #14 Insecticide (60 min)

WEDNESDAY APRIL 21

8:00-9:30	INSECTS & INSECTICIDE (A. K. Karel) #15 Insects (45 min) #16 Insects (45 min)
9:30-10:15	HARVESTING AND SEED STORAGE (A. K. Karel) #19 Harvesting (10 min) #20 Seed Storage (35 min)
10:15-10:30	BREAK
10:30-11:30	APPROPRIATE TECHNOLOGY (Bart Sensenig) Constructing sprayers, cultivators, & storage facilities
11:30-12:30	COWPEA DISEASES (J. Teri) #17 Cowpea Diseases (30 min)
12:30-2:00	LUNCH
2:00-3:00	COWPEA DISEASES (J. Teri) (Lecture Theatre #5) #18 Diseases (60 min)
3:00-3:15	BREAK
3:15-5:00	TEACHING INSECT AND DISEASE PREVENTION (Trina Sensenig)
7:30-9:30	DINNER PARTY

DAY/TIME	ACTIVITY (CONVENOR)
THURSDAY APRIL 22	
7:30-10:00	TRAVEL TO ILONGA AGRICULTURAL RESEARCH STATION
10:00-10:30	BREAK
10:30-12:30	FIELDWORK (F. Machange & F. Mbowe)
12:30-1:30	PICNIC LUNCH
1:30-3:00	FIELDWORK (F. Machange & F. Mbowe
3:00-5:30	RETURN TRAVEL
FRIDAY APRIL 23	
8:00-10:30	EXTENSION TEACHING METHODS (Trina Sensenig) #21 Communications (60 min) Poster Production (90 min)
10:30-10:45	BREAK
10:45-12:30	DEVELOPING AN ACTION PLAN (Bart & Trina Sensenig) Post Worksheet (60 min) Action Plan (45 min)
12:30-2:00	LUNCH
2:00-3:00	WORKSHOP EVALUATION (Bary & Trina Sensenig) Post Questionnaire Evaluation Discussion
3:00-3:30	CERTIFICATION PRESENTATION

COWPEA WORKSHOP FIELD REPORT

Barton Sensenig 3rd
Centre for Continuing Education in Agriculture
May 17, 1982

Purpose

The Cowpea Workshop of the Centre for Continuing Education in Agriculture was held at Morogoro, Tanzania, April 19 to April 23, 1982. The Workshop was designed to test and suggest improvements in draft instructional materials which will ultimately be distributed to Ministry of Agriculture Training Institutes (MATIs) for teaching improved Cowpea Cultivation to Extension Agents. Participants were sixteen extension agents from Morogoro District.

This report is a working document summarizing the experience and major findings of the workshop as a basis for revision of the instructional materials. It is based on qualitative analysis of the workshop experience rather than quantitative analysis of the workshop experience questionnaires. It is hoped that the lessons learned in this workshop may also be useful in planning the development of other training modules and more generally in developing cooperation between research and extension agencies.

Background

During a consultant visit to the Faculty of Agriculture, University of Dar Es Salaam, August 9 through 30, 1981, Professors Nicholls Eastmond and Don Smellie of the Department of Instructional Technology at Utah State University prepared a proposal for USAID to develop a training module based on the Ilonga Crop Research Project focusing on Cowpeas. They worked with Dr. Mazo Price at Ilonga to collect together the necessary information and prepare basic bulletins on improved Cowpea cultivation.

After their return to Utah State University, Prof. Eastmond directed a graduate student, William Lowry, in the preparation of an extensive module of instructional materials on cowpeas including many worksheets of problems and questions, a slide-tape show, overhead transparencies, etc., in addition to the bulletins. These materials were received in Tanzania in March 1982.

The Cowpea Workshop was held in April 1982 to test and suggest improvements in these materials. The contract calls for the materials to be revised and distributed to MATIs by September 1982.

Procedure

The procedure will be summarized in two phases--the pre-workshop preparation and the actual conducting of the workshop itself.

Preworkshop Preparation

The instructional materials for the workshop sent by Utah State University were held up about one month in clearing customs. They were finally received in the second week of March and a preliminary meeting was held with Dr. Mazo Price on March 16. This led to a second meeting at Ilonga on March 23, with other members of his staff at which they were assigned various teaching roles for the workshop. During the following week the DADO (District Agriculture

Development Officer) for Morogoro was contacted and invitations sent out to the Extension Agents, a budget for the workshop was drawn up and submitted to USAID, and contacts were made with various Faculty and Agriculture professors in crop science and soil science to obtain their participation. It was also arranged that Dr. Trinidad Laya-Sensenig would substitute for Dr. Giltrow as Instructional Media Specialist since he was on leave. This week was also the period in which the workshop materials were studied in great detail. In order to maintain the coordination with the concerned Tanzanian agencies, invitations to send observers were sent to Dr. John Liwenga, Director of Research at KILIMO, Mr. S. Hamisi, Director of Extension at KILIMO, and Dr. J.N.R. Kasembe, Director General of TARO (Tanzanian Agricultural Research Organization), as well as the DADO for Morogoro District. None of these observers, however, actually attended the workshop.

The next planning meeting was held at Ilonga on April 6, but Dr. Price was not present. Dr. Machange (who was on leave) was contacted and another meeting was set for April 14. On the morning of April 14, Dr. Price stopped in Morogoro on his way to Arusha and suggested postponing the Workshop. Since this was impossible, I continued to Ilonga to talk with Dr. Machange and Mbowa. Dr. Machange was very hesitant to participate without Dr. Price. He was especially concerned because the bulletins were such poor quality and had a finished (published) look with his name listed as one of the authors. He said he could not participate unless the bulletins were rewritten and presented as a draft with no names on the cover. This I agreed to do. A second concern was that Dr. Price had not notified the Director of Ilonga concerning the workshop or requested permission to participate. I, therefore, contacted the Director and obtained this permission during my visit. I left Ilonga with only the statement that Dr. Machange would "let me know" whether or not he would participate.

On Friday, April 16, I received a phone call from Ilonga that no one would be coming from Ilonga to participate in the workshop. I immediately made arrangements for various professors from the Faculty to take over their sessions. On Saturday April 17 I drove to Ilonga to confer with Dr. Machange regarding arrangements for the fieldtrip to Ilonga and was assured that Ilonga would participate in this aspect of the workshop. Dr. Machange also reviewed the first half of the revised bulletin (which was as far as I had completed by this point) and gave some helpful suggestions.

On Sunday, April 18, I completed the revision of the bulletin and the revised schedule for the workshop which were runoff and distributed to participants on Monday morning, April 19.

The Workshop

Experience with past workshops indicated that most participants do not arrive the first day. Thus, only the least important sessions were scheduled for Monday. To our surprise, however, all participants were on time. Furthermore, the coordinator had also invited all "alternates" who were intended to provide a control group of extension agents who would not attend the workshop. Thus, we had 17 rather than the anticipated 12 extension agents. One later dropped out leaving 16 who received certificates. Eight of the 16 were agents in the field and eight were from the District Office in Morogoro. Many of those from the District Office were women. The major consideration in selecting participants was finding those who speak English. Only about 10% of the extension agents speak English. These are those who have studied at

MATIs. Most extension agents are field assistants who have not attended MATIs.

In scheduling the workshop three innovations were added to the materials received: (1) After the sessions teaching each content area, a session was inserted on the teaching of that topic. In these sessions, participants practiced teaching the materials to each other. (2) A session on "fieldwork" was added to which the participants actually planted cowpeas and demonstrated to their colleagues how to plant them. (3) In addition, a session on appropriate technology was added. The intention was to teach how to build a sprayer since the whole module depended on spraying and sprayers were not generally available. However, the Agricultural Engineering professors consulted concluded that the sprayer design available was overly complex and extensive. Thus, this session was devoted to building a planter.

Worksheet #7 on identifying the different varieties of cowpeas was excluded from the schedule on the advice of the researchers from Ilonga. They noted that they themselves cannot readily identify which plant is which variety and that this is unnecessary.

The actual schedule varied from the plan to fit various professor's schedules. However, all of the listed sessions were covered and with roughly the same amount of time devoted to them.

It became immediately obvious the first day that the original plan of conducting the workshop by having the students work through the worksheets could not be followed. The worksheets were much too long and complex for the participants and an atmosphere of boredom and discontentment arose while participants sat together each working on his own sheet. Participants struggled over two hours with worksheet #1, unwilling to hand it in incomplete, but unable to complete it. It was clear that if this procedure was continued we wouldn't have any participants on the second day.

At the same time, the professors assigned to teach the various sections were reporting that they found the worksheets very poor and full of errors. For example, the data sheet on spraying had mistakenly substituted "per litre of active ingredient" in place of "per litre of formulated insecticide" so that the concentrations listed would have killed the plants.

Thus, we decided to use the worksheets as guides for the various professors and asked them to use them in any way they found appropriate. They, thus, selected the items they found most relevant. Some used the items as a basis for a lecture. Others posed these questions verbally to the participants. Others assigned the participants to write answers to one or two items in the classroom. Others assigned the problems as homework. Most generally they were used as a basis for classroom discussion rather than written.

The various professors also prepared their own handouts in addition to the materials sent from Utah State. For example, Dr. Laya-Sensenig showed participants how to make their own ink from berries and how to use newspaper for flip-charts rather than relying on the materials sent by Utah State which would soon be exhausted.

A major social disappointment was the failure of the banquet to take place. Upon arrival at the guest wing where we had reserved a week in advance, we

found that it was set to entertain the Minister of Livestock who had arrived that morning. The Director of the Cafeteria reported that the Manager of the Guestwing had not informed him of our reservation. Thus, we ended up eating whatever was left over at the cafeteria.

Drs. Ndunguru, Teri and Karel from the Crop Science Department conducted the majority of the sessions. Dr. Ndunguru, who wrote his dissertation on cowpeas, is the Head of the Crop Science Department and, thus, was not free to spend a long time with the participants. However, his lively session for an hour on Tuesday morning was one of the most memorable events. He emphasized the need for a "farming systems" approach from the farmer's perspective focusing on the intercropping of maize and cowpeas. He suggested that one could recommend planting cowpeas 30 days after ICW maize so that they would begin fixing nitrogen about when the maize would be flowering and thus have a positive effect on the maize yield.

Dr. Teri conducted the "fieldwork" practice teaching session which proved one of the most useful sessions since it made the participants actually do the extension work in Swahili. It was here that we learned that all units should be in feet and inches rather than centimeters and then should be further converted into something commonly available (e.g., matchboxes, bottle caps, etc.) He also proved an excellent teacher during his "cowpea disease" sessions, drawing the answers out of the participants themselves with an expert questioning technique and then organizing the answers for them on the blackboard.

Dr. Karel contributed greatly to the improvement of the instructional materials. He corrected errors in the existing materials, added several handouts of his own, and presented an extensive slide show on insects that attack cowpeas. His lectures tended to be too erudite and too long for the participants.

The appropriate technology session would have been more relevant if it had been on sprayers as initially planned. The impact of the planter constructed was dulled by the fact that the first exemplar tried by the participants in the fieldwork session had too big a hole and thus planted four or five seeds in a hole. At least the point was made that it is not enough to just exhort the farmer to produce more--the extension agent must help to build the capability for producing more.

Dr. Laya-Sensenig's session on extension teaching methods focused on flip-charts and chalk-board techniques and proved both enjoyable and useful.

The fieldtrip to Ilonga was successfully conducted by Drs. Mbowe and Chambuyu. In addition to the Ilonga plots we visited the field of one farmer who had planted a determinate variety but was having trouble with insects and diseases.

On the last day important insights for revising the materials were obtained from the participants and an action plan was developed in which Dr. Sensenig will send the revised materials to them for their comments and will attempt to obtain cowpea seed for them to plant in their own trials. The workshop ended with the happy event of the presentation of certifications.

Findings

1. Suggested Revisions for the Bulletin

The suggested revisions below are based on the revised, mimeographed text that was actually used in the workshop. This draft was revised from the original bulletins received in the following way: (1) The information from the general bulletin was incorporated into the bulletin for Morogoro Region. (2) Missing data (yields, spacing, days to maturity, etc.) were supplied and organized in table format. (3) The sections previously labelled "planting times" and "Spacing, Depth and Thinning" were reorganized under the titles "Relay Cropping Cowpeas and Maize" and Monocropping Cowpeas". (4) A Benefit-cost analysis of weeding and spraying, adapted from the worksheets was added. (5) The mimeographed draft was left rough and, therefore, did not include acknowledgments, contents, glossary, directory and pictures of insects which are expected to be included in the final version.

1.1 Introduction

The first sentence "Cowpea is one of the most important grain legume crops in Tanzania" should be altered to emphasize the great, untouched potential for cowpeas in the extensive, low, dry areas. It must be recognized that from a farming systems perspective cowpea is not currently an important crop. The farmer regards it as a minor crop that he may intercrop with grains only to produce grains and leaves for his own family to eat. It is not considered to have a significant mark as a cash crop since people prefer beans. Thus, the farmer is not currently interested in maximizing his yield. He only wants enough to eat. Leaves are valued as much as the peas. Thus, the indeterminate varieties which produce leaves and peas over an extended period fit better into the current cropping pattern.

Since villagers currently intercrop cowpeas with maize or sorghum, this should be emphasized. It was suggested that one could attempt to convince farmers to plant more cowpeas by emphasizing the fact that they fix nitrogen in the soil which would help the maize crop. It was noted that if one relay crops the cowpeas planting 30 days after ICW maize the cowpeas begin fixing nitrogen just before the maize flowers. More experiments should be conducted intercropping cowpeas with maize and sorghum to provide more information on the combined yields. The farmers are much more concerned with their maize or sorghum yields than with their cowpea yields.

Although the English version will do for instruction in MATIs, it was felt that the bulletin should ultimately be translated into Swahili since the large majority of extension agents are "field assistants" who have not attended MATIs and who do not know English. The Swahili version might be further simplified. One might prepare a one-page simplified handout that could be distributed to farmers.

To the nutrition information should be added the fact that cowpeas should be eaten together with grain in the ratio, 3 parts grain to one part cowpeas. The bulletin should also include tips on cooking cowpeas. One of the reasons that beans are preferred is that villagers don't know ways of cooking cowpeas. Note that the bulletin should be appropriate for women since they are the ones who do the planting of cowpeas.

One should not say that leaves are more important than grain yields, but equally as important.

The sentence "Current village yields may fall under 150 kg/h, but even minimal management practices can result in a ten-fold increase to 1400 kg/ha" is unclear. Define "minimal management practices." The Bwana Shambas report that villagers do weed now, but it will be very difficult to convince them to spray cowpeas.

1.2 Site Analysis

In this section there should be a short description of the way village farmers plant cowpeas now and how they fit into the current farming system.

One should define more narrow zones where cowpea culture could be recommended and note that it is especially appropriate for the short rainy season wherever this occurs. In place of (December-January) the text should read "Late November or Early December-January".

The generalized map of different zones was dropped since this was in the Morogoro bulletin, but perhaps it should be reintroduced since no general bulletin is envisaged. One should consider carefully what other bulletins will be written. Regional boundaries do not coincide with the zone boundaries, even for Morogoro.

1.3 Seedbed Preparation

Replaced "several" weeks with 4-6 weeks. The Bwana Shambas recommend saying six weeks or when the maize is knee high.

1.4 Fertilizers

One Bwana Shamba thought it was too general to just say that most soils don't require fertilizer. He noted that one could apply nitrogen in the early stages or phosphorous depending on the soil.

1.5 Cowpea Varieties

It is hard to differentiate cowpea seeds by eye. A villager could make a mistake and plant an indeterminate variety during the short rains. Thus, they need to know how to identify them. Perhaps a good labelled picture of the seeds could be included in the bulletin. The bulletin should recommend buying treated and labelled seeds from Tanseed--assuming that Tanseed will sooner or later get around to selling them.

On the decision as to whether to plant determinate or indeterminate, it was noted that if one planted a determinate variety with Katumani planting 30 days after the maize, one would harvest both crops in the same month and this would be too laborious.

The paragraph which starts "The major advantage of the new varieties is their increased resistance to diseases" needs to be rewritten. It should be qualified by saying, "when recommended practices are followed." It was noted that using improved seed is not the only method for avoiding diseases. Planting time is important since rain causes mosaic, etc. The importance of having treated seeds should be emphasized since so many diseases are seed

borne. If, as is currently true, seeds are not available from Tanseed one might consider discussing how to treat locally available seeds.

In the paragraph beginning "Note the extreme improvements . . ." It was suggested that one discuss the effects of only weeding without spraying. They reported that the farmer is not ready to use his money for buying spray and that spraying is tedious.

Double check in the footnote whether Tumaini is TK1 or TK5.

There should be a section added somewhere in the bulletin about common measures--e.g.: 5 ml = one sun vita cap; matchbox, etc. There is also need for information on how to get sprayers etc. (from the Cotton Authority). Perhaps all this can go in the appendices.

Table I: Add IET as another determinate variety. Double check the yield data in column three. Change all indeterminate varieties to read "90" days to maturity. Check this with Ilonga first. See footnote 4.

Note that SVS3 did best with no spraying. Local needs are actually a mixture of varieties, thus, if one is attached another may survive, making one surer of getting a minimum yield.

Throughout the text, all centimeters must be changed into inches and feet. This is what is used by farmers. It is also best to add parenthetical visual explanations ("knee high", "the distance from thumb to little finger with your fingers spread") where possible.

Relay Cropping Cowpeas and Maize

Page 5, paragraph 2: "Several" weeks--change to 7? 4?.

We say "planting of maize is only recommended during the long rains." The Bwana shambas insist that the farmers do plant Katumani during the long rains and the whole crop is attacked by maize blight.

Page 7, second line: ". . . seed damage by insects and rain,".

Monocropping Cowpeas

Add more on planting in rows and spacing to convince them to do it. Find a study on labor savings for weeding and spraying from planting in rows. Argue that it eases labor and gives higher yields. Ilonga should plant a control plot the way farmers plant (without rows) in order to be able to report this comparison.

Table II: Put measures into locally available containers. For example for IET seed (which is double the weight of the others) we found that six match boxes would plant a 10 meter by 10 meter area.

The Bwana Shambas ask if one couldn't plant two seeds per hole with double the spacing along the row. This would be half as much work. This is what has become recommended for maize. This is a suggestion for further research at Ilonga.

Someone objected to the use of "monocropping" as a verb--some other wording should be found, eg. planting as a monocrop.

In Table III someone recommended showing both Kgs. seed/ha. and pounds per acre.

Someone suggested including recommendations for monocropping maize as well.

Weeding

It was suggested to recommend burying the weeds in the field since removing them is tedious. They wanted a clear comparison between weeding and spraying making it clear which has the greater effect.

Spraying

As noted above, the Bwana Shambas thought it would be very difficult to convince farmers to spray cowpeas.

The swahili names for the insects should be added.

Figure 2: The cost in the figures seems to be about half of current costs. Different people gave the following estimates: 500 shillings per hectare for weeding and nine days per acre (the latter sound long). Land preparation was estimated as 250 shillings per acre (625/ha) and it should take 7 days per acre at 8 hours per day. The example was based on 10-hours days which is unreasonable. Payments are usually made on the basis of the field (per hectare) rather than on the basis of the number of days.

Seed Storage

Should add comment on the effectiveness of smoke since most farmers store seed above their kitchen fires. Also suggested to discuss the use of ash as a preservative.

2. Other Findings

2.1 Spraying

Special attention should be paid to giving Bwana Shambas advice on how to convince villagers to spray cowpeas and how to make this possible. Our attempt to build an appropriate technology sprayer did not succeed, but it was thought that one could be designed. Sprayers are generally available in villages which grow cotton, distributed by the Cotton Authority. Arrangements should be sought through which they could be used. In other villages it may be necessary to develop arrangements through cooperatives to purchase sprayers. ULV sprayers are appropriate and relatively cheap but thought must be given to the expense of the batteries. Currently the demand for them far exceeds the supply. The Bwana Shambas suggested that they should have a small demonstration plot showing sprayed and unsprayed cowpeas. We will attempt to obtain seeds for them. (They said five matchboxes per person.)

2.2 On Procedures for Developing Other Modules

The development of the modules should be done in this country where there can be closer feedback and consultation with researchers and extension agents during the development. The first draft to be tested should be kept looking rough without any names on the cover so it doesn't seem published. The draft copies should be collected at the end of the workshop (as they were this time) to prevent wrong information being used. Later, participants will receive corrected versions. Probably the final bulletin should not have names on the cover since it will be a team effort. We noted that the scientists were especially wary of having their names on something that wasn't simply a scientific report. This will always be the case in a bulletin designed for extension since many compromises must be made between what is the best procedure and what is feasible.

We found the workshop with Bwana Shambas to be an excellent way of improving the materials. A similar conference might have been held earlier as a way of learning the current farming systems practiced and suggestions for experiments to improve them. A lot of experience is brought by each bwana shamba that might have taken considerable time and trouble to obtain through direct studies of farmers.

In developing such materials the widest possible range of perspectives that can be consulted will be best. In addition to insights from the Bwana Shambas, we gained greatly from insights from various professors at the Faculty of Agriculture, Forestry and Veterinary Science. Ilonga researchers expressed some worries about exhibiting disagreements among scientists in front of the Bwana Shambas, but, since the objective was the improvement of the materials, this difference in perspectives actually proved extremely valuable.

2.3 Workshop Procedures

The worksheets should be shortened and simplified and fieldwork should be added. Participants should go through actually trying to teach cowpea culture to each other in the field by showing, explaining, and having the learner do what he learns.

The CCEA could benefit from developing a laboratory relationship with these Bwana Shambas to continue testing other modules. This is convenient since they are the closest extension agents who speak English.

The slide tape went over very well. The content could be improved, but the idea was very well accepted. It would be good to prepare and additional slide tape on insects and spraying. Two or three slide tapes would be very much appreciated. I heard that many MATIs now have their projectors out of order.

We were unable to make carbons since we had 17 instead of 12 participants and had to use the spare copies for the extra participants.

It was good to start by asking the Bwana Shambas what the villagers actually do now.

2.4 On Workshop content

The Bulletin recommends soils samples. Most people say it is impossible to get these done, although two professors from soils science say it is possible. This needs to be checked out.

Entomologist says Endosulfan no longer kills Thribs. It used to, but they have become resistant. Decis is not yet approved for use in this country and is not available. It is very effective, but they are not yet sure how safe it is. When we tried to get Endosulfan spray it also was not available--only the dust. The only thing Tanzania Pesticides had was Tangatox which is basically DDT. I have been told that Endosulfan spray can usually be obtained.

No Cowpea seed was available from Tanseed.

One must always keep in mind easing the farmer's labor. This is the most important thing to them. If a recommendation requires more labor during the months when they busy they won't accept it. Ilonga should start measuring the labor input required for the different practices they recommend.

Farmers are very hesitant to invest any money--for example for spray. The argument must be very strongly made that this will result in substantial financial gains and that it is not risky.

Since it is the women who plant cowpeas, the men will not be very impressed by labor-saving arguments. For them, the argument should be phrased in terms of the increased land that can be planted rather than easing the labor. We should consider channels through which the Bwana Shambas can contact the women--probably finding an interested village woman to pass on the information.

Should one add a section in the bulletin on the control of pests (animal pests)? Chickens ate the flowers on the cowpeas in one field. Wild pigs seem to be a major menace to grain crops as well as cowpeas.

It is questionable whether the module should include the very complex calculations of how much water to mix with spray. The Bwana Shambas say that all you have to do is follow the instructions on the package of spray. It would be good, however, to detail how to test out a sprayer filling it with water and then walking around and seeing how much spray you use per unit area.

Bwana shambas say that farmers already relay crop. Good to build on this. I don't know to what extent they do it.

REPORT TO PRINCIPAL SECRETARY, MINISTRY OF LIVESTOCK DEVELOPMENT ON REGIONAL LIVESTOCK DEVELOPMENT SHORT COURSE

Held at:

Centre for Continuing Education
Faculty of Agriculture, Forestry and Veterinary Science
Chuo Kikuu
Morogoro

January 16-26, 1983

Submitted by

CENTRE FOR CONTINUING EDUCATION

February, 1983

REPORT TO PRINCIPAL SECRETARY, MINISTRY OF LIVESTOCK DEVELOPMENT

DAR ES SALAAM

ON

REGIONAL LIVESTOCK DEVELOPMENT OFFICERS SHORT COURSE

The Ministry of Livestock Development realized there was a great need for the Livestock Development Extension Staff to be oriented on "Extension methods and procedures" and get a brush up on issues related to their normal activities. Therefore, it started with the Regional Livestock Development Officers (RLDOs) with the following specific objectives during the conducting of this ten-day course:

1. Teaching the RLDOs the extension methods
2. Identifying farmers' needs (RLDOs and teachers)
3. Discussing animal production and improvement
4. Learning how to plan programmes through implementation
5. Discussing livestock economics

The course ran from January 16 through January 26, 1983. Participants were RLDOs and Livestock Training Institute (LITI) tutors teaching extension subjects. Those who turned-up are shown in Appendix I. Different reasons were put forward by late comers. These mainly were the overall poor communication that included transport and failure to receive invitation letters early from the Ministry.

Tour

A tour to Dakawa Ranch was successfully made. A total of 23 course attendants and convenors went for a tour. All important areas in the ranch were toured and a brief history of Livestock complex was given by the ranch manager. The retinue was happy for the courtesy exhibited by the manager and his co-workers.

Convenors

The convenors came from the Ministries of Livestock Development and Agriculture, Faculty of Agriculture, Forestry and Veterinary Science (FAFVS) (see Appendix II).

Course evaluation

Most participants, indicated that the course was extremely appropriate and relevant since they did not have such information when they were pursuing their degrees. They further indicated that together with their field experience they were not in a position to work with farmers. They requested for such courses to be conducted for all livestock extension workers. Participants showed discomfort with our services offered. The reasons were two-fold. First, the agreement did not include transportation, especially to and from town, during resting time. Second, the problem of shortages is well known we

were failing to secure all essentials. (Appendix III shows breakdown of responses).

Certificates

Certificates were presented by the Principal Secretary, Ministry of Livestock Development to the participants at a closing banquet. He further insisted on all livestock extension workers to get such courses.

B. L. M. Bakobi
for Director,
CENTRE FOR CONTINUING EDUCATION

APPENDIX I: Course Attendants

	Name	Region/LITI	Date of arrival
1.	Dr. J. Ngesela	Morogoro (R)	16/1/1983
2.	Nd. A. S. Kalugula	Coast (R)	17/1/1983
3.	Nd. C. C. Bigemano	Morogoro (LITI)	17/1/1983
4.	Dr. E. S. Munuo	Shinyanga (R)	18/1/1983
5.	Dr. L. K. H. Tesha	Kilimanjaro (R)	18/1/1983
6.	Dr. J. L. Mrema	Tanga (R)	18/1/1983
7.	Dr. G. O. K. Mruma	Tabora (R)	18/1/1983
8.	Nd. L. J. Mzeru	Mpwapwa (LITI)	18/1/1983
9.	Dr. F. N. J. Minja (Group Chairman)	Dodoma (R)	18/1/1983
10.	Dr. G. L. Komba	Iringa (R)	18/1/1983
11.	Dr. N. M. Ngowi	Lindi (R)	20/1/1983
12.	Dr. C. M. Ntayomba	Arusha (R)	20/1/1983
13.	Dr. J. N. Malewas	Mara (R)	20/1/1983
14.	Nd. G. Guga	Tengeru (LITI)	20/1/1983
15.	Dr. C. Mapunda	Mtwara (R)	20/1/1983
16.	Dr. A. J. Mackay	Singida (R)	22/1/1983
17.	Nd. P. M. Senkondo	Dar es Salaam (R)	23/1/1983
18.	Dr. H. E. A. Mbwille	Kagera (R)	25/1/1983

APPENDIX II: Course Convenors

	Institution/Department/ Ministry	Part played/ Topic taught
1. C.C.E.	Faculty of Agriculture Forestry and Veterinary Science	Host
2. Hon Kirigini (MP)	Minister for Livestock Development	Opening Speech
3. Nd. V. K. Rugambwa	Research and Training Ministry of Livestock Development	Assistant Director, Initial Organization
4. Nd. Manento	Ministry of Agriculture	Introduction to agricultural extension
5. Prof. B. Sensenig	Department of Agricultural Education and Extension (FAFVS)	Psychological, Social and Cultural Factors in Extension
6. Dr. J. Weber	Department of Agricultural Education and Extension (FAFVS)	Extension and Teaching Methods
7. Prof. D. Giltrow	Department of Agricultural Education and Extension (FAFVS)	Extension Teaching Aids
8. Dr. Poley	Ministry of Agriculture (Ruaha-Iringa)	Experiences from Training for Rural Development Projects - Successes, Failures
9. Dr. Acker	Ministry of Agriculture	Extension methods
10. Mr. Pickett	Ministry of Agriculture	Extension Programme Development Evaluation
11. Drs. Msolla, Jiwa and Mgasa & Prof. Kombo	Veterinary Division (FAFVS)	Epidemiology
12. Mr. Donald	Ministry of Livestock Development (FAO)	Economics of Livestock Production
13. Dr. Magembe	Ministry of Livestock Development	Economics of Disease Control
14. Mr. Davis	Ministry of Livestock Development	Status of small-scale dairy in Tanzania

	Institution/Department/ Ministry	Part played/ Topic taught
15. Prof. Kyomo	Department of Animal Science (FAFVS)	Sheep and goat production
16. Dr. M. Mgheni	Department of Animal Science (FAFVS)	Rabbit Production
17. Dr. Madallali	Principal Secretary, Ministry of Livestock Development	Presenting Certificates and closing the course

APPENDIX III (b) SCALE

No.	4	3	2	1	0
1.1	0	1	2	11	3
1.2	0	6	10	0	1
1.3	0	1	14	2	0
1.4	0	0	0	2	1
1.5	0	0	0	2	1
1.6	0	1	0	1	1
1.7	0	0	1	3	0
2	3	11	3	0	0
3	1	14	2	0	0
4	5	10	2	0	0
5	1	12	4	0	0
6	3	11	3	0	0
7	2	9	6	0	0
8	2	5	8	0	2
9	2	7	6	0	2
10	3	11	3	0	1
11	3	12	2	0	0
12	1	8	8	0	0
13	0	9	8	0	0
Totals	26	128	82	20	11

CENTRE FOR CONTINUING EDUCATION

CHUO KIKUU, MOROGORO

OPINIONNAIRE

Name of Course/Programme_____
Commenced from: _____ 19____ to _____ 19 ____

Dear Participant:

Your comments and candid opinions will help the CCEA to improve other assembleges. Every response will be treated confidentially and will remain anonymous.

Please rate this assemblege/your stay by circling the appropriate number indicating your answer:

		Excellent	Very good	Fair	Poor	NA*
1.	Services offered as regard to:					
	1.1 Transportation	4	3	2	1	0
	1.2 Accommodation & laundry	4	3	2	1	0
	1.3 Food	4	3	2	1	0
	1.4 Toilets	4	3	2	1	0
	1.5 Newspaper/Radio	4.	3	2	1	0
	1.6 Visit to Campus	4	3	2	1	0
	1.7 Recreation/Entertainment	4	3	2	1	0
2.	Concern of administration/ attendants with participants' welfare	4	3	2	1	0
3.	Appropriateness of material covered	4	3	2	1	0
4.	Expertise (preparation) of instructors/teachers	4	3	2	1	0
5.	Timing and sequencing of information presented	4	3	2	1	0
6.	Clarity and logical consistency of material presented	4	3	2	1	0
7.	Usefulness of exercises/homework/assignments given	4	3	2	1	0

	Excellent	Very good	Fair	Poor	NA*
8. Usefulness of practicals involved in.	4	3	2	1	0
9. Usefulness of aids/equipment/ implements/tools/materials used to facilitate learning	4	3	2	1	0
10. Concern of instructors with students' learning	4	3	2	1	0
11. Applicability and relevance of training to your type of work	4	3	2	1	0
12. Comfortability of setting and surroundings	4	3	2	1	0
13. Overall situation during your stay	4	3	2	1	0

Kindly list below any additional remarks/comments on the overall programmes/ course content/your stay and others.

Remarks/Comments	No. of Respondents	Reasons/Measures
1. Failure to provide a variety of food	3	CCE still depends on the University kitchen: hoping to have one in future.
2. Lack of entertainment, games, etc.	3	Problem of shortages of games equipment. Will make effort to purchase those available.
3. Poor cleanliness of hostel	2	Problem of scarcity: will be more active in future.

*NA - Not applicable

ANNEX I

EXAMPLES OF TRAINING PACKAGE AND CONSULTING ACTIVITY

1. "Production of Training Packages/Modules for Farmer Training" (Gonsalves)
2. Draft for a Trainer's Guide on "Improved Field Bean Cultivation in Tanzania" (Sensenig)
3. Status of Stove's Research (Laya-Sensenig)

PRESENTATION TOPIC: PRODUCTION OF TRAINING PACKAGES/MODULES FOR FARMER TRAINING

Julian Gonsalves
Research Associate
Department of Agricultural Education & Extension
Faculty of Agriculture, Forestry and Veterinary Science
Morogoro

A. Trainer's guides & technical manuals

* A trainer's guide is a trainer's guide! Thus, a trainer's guide (TG) is more than just a technical manual. A TG, besides providing technical information, also contains suggestions and strategies for communicating the particular technical subject matter through a training situation. (These are not specified in great detail as in lesson plans.) The authors of a trainer's guide are constantly aware that their manual is meant for trainers and this is reflected in the writing of the manual.

* A technical manual deals primarily with the technical subject matter without special consideration for its application in training. Such technical manuals must be "interpreted and translated" into training strategies by the trainers themselves based on the trainee needs, situation, etc.

* If a trainer's guide in the particular subject area is not available then the technical manual is the next best information source for a trainer. In cases where only a technical manual is available, a set of annexures (to the technical manual) could be prepared in collaboration with the technicians/scientists involved, which would provide suggestions for trainers. Sometimes sample lesson-plans or training program formats can also be featured in the annexure of technical manuals. Such efforts increase the relevance of technical manuals for the training situation.

* Both technical manuals and trainer's guides need to be tested at various levels: scientists, extension workers, farmers (preferably the task of coordinating this effort should be undertaken by persons with an understanding of farmer situation and training activities. Modifications must be made accordingly. Often it is difficult to get 100% consensus on what should go in and how it should be worded. The coordinator must at some point make firm decisions (keeping the farmer situation as the primary concern) and go ahead with final production.

* Thus a clear understanding of who the primary target audience is to be is necessary.

* It is important that the author of such manuals give an adequate coverage to the rationale behind the recommendations being made. This is important so that the reader (trainer) understands the "why" aspects of the recommendations. It also provides a basis for the reader to make his/her own adaptations.

* Sufficient opportunity must be provided to trainers to make certain decisions themselves. Thus, it is important not to give too detailed specifications on aspects which are not very critical. When specifications of a detailed nature are minimized then retention (of what is read) is increased and distortion is reduced on a related aspect. Provide the readers of the manual with 'options' to choose from instead of suggesting one single strategy. This increases relevance and applicability.

* Trainer guides or technical manuals must have detailed suggestions about reference materials, source of publication, etc. so that a trainer seeking additional information can do so.

B. Farmer handouts

* From my own personal experience a handout for farmers should contain between 400-700 words and should not be longer than 2 pages. This could be in the form of sheets or folded as required.

* Ideally, if costs permit there, must be an illustration on each page (however simple it may be).

* Make sure there are an adequate number of subtitles so that the reading does not become monotonous. This could be based on the major elements of the topic (e.g. seed selection, land preparation, sowing, weeding, etc.)

* The writing style should be informal, chatty and use simple language. Avoid, insomuch as possible, technical jargon. Use local expressions and terminology wherever possible.

* Use local units of measurement.

* As in the case of trainer guides, don't be rigid and unflexible about recommendations. Provide alternatives. Make sure they are presented as alternatives to avoid confusion.

* Keep the specifications to the minimum to avoid distortion and increase the retention and multiplier effects.

* Farmer handouts are usually localized and are produced for specific agro-climatic regions and on single topics or sub-topics. Farming handouts from other regions can serve as prototypes. Originality is not always necessary and may be too time consuming.

* Obtaining inputs is an important factor which must be directly addressed in localized farmer handouts. Often lack of availability of inputs is an important factor limiting application of acquired knowledge or skills. Advice on sources of information/availability of inputs should be given in handouts (names of agencies, addresses, approximate costs).

C. Lesson plans

* "A lesson plan is a simply stated, clearly written, flexible and individualized teacher aid for conducting a learning situation" (Module B-4, The Centre for Vocational Education, Ohio State University).

* A lesson plan is not merely an outline of topical coverage of material under discussion.

* A lesson plan provides the trainer with a suggested strategy for conducting a meaningful and effective learning situation.

* Lesson plans and trainer guides are basically guidelines and trainers should not hesitate to adapt them whenever necessary in order to meet the special needs of a group.

* Since an interchange of training material is envisaged (between various agencies/ministeries) it is advisable that those engaged in materials-production should strive to adopt a single format for lesson plans, a common coding system for modules, and common terminology.

* Every lesson plan should have a title, an index code, the names of the persons and/or agencies involved in the preparation of original drafts, and the date of production.

* The section on "advance preparation" has suggestions for the trainer about arrangements that will have to be initiated and completed prior to the beginning of the actual lesson. For example, in the case of a course where it may not be possible to study all the stages of nursery preparation, a trainer will have to raise a nursery 4-5 weeks earlier so that participants doing field practicals in bed-preparation can then practice other stages in previously prepared beds (e.g. thinning, weeding, watering, uprooting, transplanting). In case of field trips to villages, advance announcement to the village council may be necessary. Also transport arrangements must be made.

* The "Goal" is a broad, general and overall statement of desired outcomes. The specific outcomes are spelled out in the form of objectives.

* "Rationale": This should be a brief statement which provides a justification of WHY one feels the trainees should be instructed in the particular lesson area. It helps clarify the intent of the lesson. Along with the Goal, the Rationale helps trainers/instructors know WHY they are teaching a particular lesson. The rest of the lesson plan is useful in knowing WHAT needs to be taught and HOW.

* "Objectives" should preferably be specified in "performance terms". A performance objective describes specifically what the trainee will be able to do as a consequence of the lesson. Such an objective should NOT describe trainer activity. Each objective should contain three kinds of information:

  (i) Desired outcome
  (ii) Desired level of achievement
  (iii) Conditions under which training task is to be performed.
  (Refer to 'Preparing instructional objectives' by Robert Mager, for excellent coverage of this topic).

* Participants should be informed about the expected outcomes, conditions under which they are expected to perform, and the criteria by which their performance will be evaluated. This information should be given to them before they actually get started on the particular task.

* The "Lesson-content outline" is basically a listing of "key" points or messages that need to be communicated. It is best that these be separated into as many separate statements as necessary. (For each of the statements, specific instructional procedures, reference materials, aids valuation procedures and time allocations will be suggested.)

* The Section on "Instructional procedures" provides the trainer with suggestions on WHAT is to be done, WHEN to do it, HOW to do it and WHERE to do it. If these suggestions are to be useful they have to be detailed enough. Thus a general suggestion like "Field trip" serves little purpose. Instead, specific and detailed suggestions like the following are preferred:

  (1) Take trainees to a nearby village and visit farmers to study the range of pests attacking stored maize. Each trainee will collect three different kinds of storage grain pests.

  However, over-detailed instructions are to be avoided because it can get boring and also can curb trainer creativity and participants self-directedness.

* The section "Reference material and training aids" contains specific information sources necessary for a particular instructional exercise. (This differs from the "Bibliography" which contains general reference/information sources and are not essential). Lesson plans should indicate where the trainer can obtain detailed information on a particular topic or sub-topic (e.g. on what page(s) in the trainer's guide or other reference material).

* "Evaluation Procedures" for each of the items in the lesson-content outline are necessary. These are items to "evaluate" if the particular instructional exercise has been successful. These could be visual, written, verbal or manual techniques. For example: "Ask students to give three criteria for selection of coconuts for seed purposes" or "The compost pit that has been dug should not be deeper than three feet deep" or "Trainee will be able to accurately determine the sex of three out of five bunnies." Often the information in an objective should give valuable information on evaluation. However, one major difference (as I see it) is that the objective gives trainees and trainers information on evaluation criteria while the section on "Evaluation procedure" gives the trainer suggestions on evaluation procedures.

* The "Questions for discussion" is a detailed listing of suggested questions which the trainer will pose to his/her trainees at the end of the lesson in order to get a discussion going and to get a quick feedback on what aspects need to be repeated or emphasized. Over generalized questions should be avoided since they don't serve the purpose of providing the type of feedback desired. Emphasis must be on finding out if trainees have learned the key concepts or skills that are considered necessary.

SOME ADDITIONAL ISSUES PERTAINING TO CONTENT OF TRAINING PACKAGES OR MODULES+

* The target audience (farmers, extension workers) are rarely consulted regarding the content, format etc. of training packages. You will be surprised how much they could contribute if special efforts are made to get their suggestions. In testing efforts also, the target audience can make valuable suggestions.

* Fellow trainers (MATI's, Folk Development College, school teachers) could be interviewed to find out what their perceptions of material-needs are. They are in a good position to decide what the material-needs are and to prioritize them.

* Often, instructional material is produced just because some technician or researcher has a wealth of information available. Do you remember the story of Abunuasi (Handout from Dave Acker) who was searching for his lost keys outside his house even though he had lost them within his house? When questioned he indicated that he was looking for his keys outside because there was more light outside than within his own house! We need to remember that materials-production efforts must be geared towards an identified or expressed need.

* The easy way out in production of training material is to take an agriculture college or school curriculum and simplify them. Such watered down versions don't always relate to the practical concerns of trainers and farmers.

* We need to take special care to ensure that the ideas being promoted in our material do not have an undesirable effect on the ecological environment. This is a trainer's responsibility too (especially true if others responsible are not doing their job adequately). Being at the operational end of the communication/dissemination cycle, the trainers have a "moral" obligation in this regard.

* Similarly, ideas being promoted in our materials may have unwanted nutritional consequences on certain or all members of the farm family. Critical analyses and far-sightedness helps avoid such unintended consequences.

* Rigidity of recommendations must be discouraged unless it is of critical importance (e.g. potential health hazard if on excess dosage of a chemical issued as used or reduced effectiveness if less is used).

+Refer to the "Crops-checklist" and "What to include: a core of general technical recommendations" by Dr. Giltrow, Faculty of Agriculture, Morogoro, for technical considerations.

* Lessons should be sequenced so that instruction begins with the simpler ideas and progresses gradually to more complex ones. This way the trainee also cumulatively improves his/her own competencies and capacities to manage technology. This may mean sacrificing the opportunity to obtain maximized returns during early stages.

* Every effort must be made to identify a document and disseminate good traditional ideas and practices. The inclusion of such knowledge not only preserves valuable resources for posterity but it also lends a certain amount of legitimacy to declining good practices.

* It is desirable that trainees obtain a certain degree of positive experiences immediately after training. In determining content and designing exercises/ lesson plans, this consideration must be included.

EXAMPLES OF SUBJECT CATEGORIES AND INDEXING SYSTEM

Two-digit codes:

01	Animal health	04.0	Basic agricultural sciences
02	Animal power		
03	Appropriate technology	04.1	Soils
04	Basic agricultural sciences	04.2	Water
05	Bee keeping	04.3	Plant physiology
06	Cereal crops	04.4	Plant diseases
07	Crop protection	04.5	Plant insects
08	Farm structures/housing	04.6	Plant nutrition
09	Farm machinery	etc.	
10	Farm management		
11	Fisheries	14.0	Food preservation
12	Forage and Fodder		
13	Forestry	14.1	Drying of vegetables
14	Food preservation	14.2	Salting of vegetables
15	Fruit culture	14.3	Jam production
16	Home gardening	14.4	Salting of meat and fish
17	Human nutrition	14.5	Smoking of meat
18	Irrigation	etc.	
19	Legume crops		
20	Livestock production	20.0	Livestock production
21	Oilseed crops		
22	Plantation crops	20.1	Dairy husbandry
23	Soil and water conservation	20.2	Pig production
24	Spice crops	20.3	Rabbit husbandry
25	Storage	20.4	Poultry production
26	Tuber crops	20.5	Duck production
27	Vegetable crops	etc.	
etc.			

COMPONENTS OF A TRAINING PACKAGE

Each training package or module could consist of items such as the following:

1. Table of contents
2. Trainer's guide/Technical manual
3. Farmer's handout
4. Lesson plans
5. Reference material
6. Audio-visual material

* All of the above material need not all be produced at the same time. In fact, some of the material may be procured from other sources and compiled for use as part of the module.
* The trainer's guide/technical manual, lesson plans and farmer handouts are probably the most essential of the items.
* In the initial period, audio visuals produced for other settings may be used until such time localized material can be produced. Often materials produced for other settings can serve as prototypes for producing localized versions.
* By crediting those involved in the production effort one is often able to ensure higher quality contributions. There is also increased incentive form them to continue their involvement in materials production.
* Considering the time, effort and money invested in materials production, it may be worthwhile to procure box-files for storing various components (especially those packages/modules which have been fully developed).

MEMO ON FIELD BEAN MODULE

TO: Farmer Training Wing Staff

FROM: Bart Sensenig

RE: Field Bean Module

Attached is a rough draft for a Trainer's guide on "Improved Field Bean Cultivation in Tanzania". The major objective in presenting this draft trainer's guide at this time is to propose and exemplify an approach to Farmer Training referred to as the Farmer Scholar approach. The approach will be summarized in this memo. the trainer's manual exemplifies specific lesson plans. However, the specific content of recommended practices remains very rough. It will be rechecked and revised at a later date. The remainder of the module (Farmer handout, references, audio-visual materials, exercises, etc.) will also be developed later.

Farmer Scholar Approach

The Farmer Scholar approach outlined here was developed by Dr. R. W. Roskelley in the Philippines in 1973-75. The project successfully tripled rice production and resulted in vast improvements in such diverse areas as vegetable production, swine production, poultry, water management, and rural banking. Lesson plans are available for all of these areas.

The key to the Farmer Scholar approach is teaching farmers how to teach others. Thus, for each improved practice the farmer is taught not only the technical details of how to follow the practice, but also is trained in how to teach it to his neighbors. Each Farmer Scholar, trained at a Farmer Training Centre, then trains five of his neighbors (Demonstration Farmers) who in turn each train five of their neighbors (Extension Farmers). Thus, for every one farmer trained at the Centre a total of 30 farmers receive training. This "multiplication factor" using unpaid local change agents makes the approach economically efficient and provides a basis for reaching the masses of farmers who can never be adequately approached with an always inadequate formal extension service. The intensive training in groups of five rather than large lectures means that appropriate teaching methods--teaching by showing and learning by doing in the fields--can be employed, resulting in concrete practical knowledge. Other advantages of this approach are that the trainee will be especially diligent in learning when he knows that he will have to teach the materials to someone else, that one villager will be more likely to listen to advice given by his neighbor than to the advice of an outsider like an extension agent, and that the sharing of information encouraged through this approach is a step along the way toward more extensive cooperation.

The Farmer Scholar approach is organized through a Farmer Training Centre where selected villagers are sent as Farmer Scholars for very short, very simple training in specific improved practices. training programs were four days long and consisted of simplified, concrete practices that could easily be learned and taught by untutored farmers. Keeping each training session short and specific and having different trainees for different courses was a way of making sure that no one person was overburdened with too much volunteer work. A second important factor in getting villagers to volunteer was having a

really worthwhile practice to teach. As a general rule of thumb, the new practice should be able to double the farmer's production in the relevant crop or animal raising discipline. Trainers at the Centre act as technical specialists in backstopping the trainees, and extension agents can act as "generalists" directly backstopping the trainees and calling upon the technical specialists as needed. Project organization should include a regional-level coordinating committee including representatives of the various governmental, parastatal and private agencies needed to backstop the trainees with respect to inputs and markets.

A key aspect of the Farmer Scholar approach is its grass-roots up as opposed to top-down approach. The villagers must plan and carry out their own program with project staff only acting as facilitators. Thus, both the initial approach to the villagers and the training are carried out through a dialogical rather than lecture method, drawing information and decisions from the village farmers through questionning. In the Philippines, villagers selected their own farmer scholars, following a list of criteria agreed upon with Farmer Training Centre staff. In adapting this to Tanzanian structure, one might have each 10-cell select one member as a Farmer Scholar. The 10-cell leader could be the program coordinator, and different members could be sent for training in different disciplines, each being responsible for training the others in the 10-cell group. The selected Farmer Scholars must formally agree and pledge to teach their neighbors upon return. When appropriate, they must also prepare their field or make other preparations for demonstrating to others (e.g. building a chicken coop) before departing for training. In return, the 10- cell group should agree to help the farmer scholar by covering his chores while he is away for training and possibly by providing some small expense money such as his transportation to the training centre.

The fact that training must involve practical learning in the fields means that it must be carefully scheduled to correspond with the crop year. The farmer teaching his neighbors must demonstrate each practice in his own fields at the appropriate time. At the training centre, however, careful advance preparations must be made so that all of the appropriate procedures can be demonstrated in four consecutive days. This implies that the Centre must have irrigation available and that various plots must have been planted at different times preceding the training session.

IMPROVED CULTIVATION OF FIELD BEANS IN TANZANIA

TRAINER'S MANUAL

Rough Draft Outline
Barton Sensenig
July 1982

1. INTRODUCTION

This manual is intended for the staff of Farmer Training Centres in Tanzania. It is to be used in conducting training courses on improved cultivation of field beans (Maharage --Phaseolus Vulgaris) in locations where agro-ecological conditions favor field bean production and where the village farmers themselves recognize the need to increase field bean production and request such training. The module is appropriate for locations where the improved practices described here are not yet applied and, thus, the module has the potentiality of doubling field bean production.

The field bean (Phaseolus vulgaris) is the most important grain legume crop grown in Tanzania. Like maize, beans constitute one of the staple foods in many parts of the country. Beans are chiefly grown for local consumption, and a small portion of the produce is marketed. Beans are generally grown in higher and wetter areas of Tanzania--especially the Northern and Southern Highlands. They are grown in Tanga; Arusha, Mara, Kigoma, West Lake, Shinyanga, Iringa, Mbeya, Mbinga, Rukwa, and Morogoro Districts. Cowpeas, rather than field beans, are recommended for the lower and drier areas.

Field beans are best suited for 1000 to 2400 m. altitudes. Sowing is done after the peak rainfall of April in the plains of Makunyi and Arusha. In the Southern Highlands beans are planted in December. Beans are grown on a wide range of soils except heavy and acidic ones. They are a warm season crop that thrive on temperatures between 20 and 30^{0}C. Beans are grown where rainfall ranges from 500 to 2000 mm. A relative humidity of 50% is suitable for good seed setting. The crop requires well distributed rainfall for the nearly three month growing period, followed by one month of dry season, but cool weather is necessary for drying pods. Maximum production is claimed to occur when 30-40 cm. of rainfall occur over a 10 week growing period followed by four weeks of dry, sunny and cool weather before harvest (Macartney and Watson 1966).

Beans are both grown as a pure stand and intercropped. Intercropping beans with other crops, particularly cereals, is a traditional practice among peasant farmers in Tanzania. When intercropped with maize in the short rains, the indeterminate climbing types are planted using maize as support. Climbers are preferred mainly because the beans mature under wet conditions and the support keeps the pods from the ground. Bush types are generally grown during the long rain season as a sole crop.

Several constraints limit field bean production. First, the predominately rainfed production is markedly seasonal. Without efficient preservation and processing, surpluses and waste occur in some periods and shortages in other months. In order to meet subsistence requirements throughout the year, irrigated production would have to be introduced during some periods. A second constraint is the variety of beans planted. Most farmers still grow mixed beans which are mostly low yielders on account of their disease and pest

susceptibility. Research has resulted in the release of several improved varieties, but seeds are often expensive and not readily available. Diseases and insect pests are the main constraints on improved field bean production. In addition to utilization of improved varieties, these can be controlled through proper seed dressing and spraying. Field bean yields can also be significantly increased through appropriate application of nitrogen and phosphorous fertilizer. In general, where yields are currently low, proper management practices should be able to double field bean production.

2. BACKGROUND PREPARATIONS

2.1 Technical Preparations

Before approaching the village farmers a number of technical preparations are necessary to be sure that you have something worthwhile to offer. First, visits should be made to technical experts specialized in the crops grown in your region. Recommendations from these experts should be formulated into module outlines on various topics like this present module on field beans. In this way, Farmer Training Centre staff become equipped with an array of modules which can meet varying demands. Each module outline should consist of a package of practices that can result in at least doubling production. The Centre should not attempt training in areas where only marginal improvements can be made.

In addition to outlining each module, Centre staff should prepare in detail the introduction for each module consisting of specific statistics for motivating farmers to undertake the improved practices. Staff should be armed with such motivating statistics when they first dialogue with villagers about the possibilities for increasing production.

Coordination must be established early between the Farmer Training Centre and the RDD and RADO. The training programs must be integrated into regional development work with a coordinating council including representatives of the various crop authorities, NMC, NRDB, etc. Through this coordinating council provisions for the necessary inputs and marketing facilities should be arranged and follow-up services for trainees via extension workers assured.

2.2 Village-level Preparations

The most important factor in the success of a Farmer Training program is that it must be a program of the farmers, by the farmers and for the farmers. The villagers must identify with the program as their own and accept the responsibility for continuing and developing the program. This means that the program must originate from the grass-roots up and not from the top down. Thus, the initial approach can be extremely important in determining the ultimate success of the project. The detailed design for the training program and for the specific modules must develop out of a two-way dialogue between Training Centre staff and the village farmers. Through appropriate questioning the Centre staff should be able to elicit needs, priorities and specific data from village farmers for developing an appropriate teaching module and at the same time to motivate the farmers to undertake their own development project and to request the necessary training.

The first step in village-level preparations is building a "development mentality" amongst the villagers. This means developing a feeling of excitement over the idea that improving their livelihood on their own is both feasible and

practical. This feeling is built through a series of dialogues in which the Centre staff ask villagers about needs and priorities and introduce appropriate motivating materials regarding the increased production possible with improved practices. The first step is to dialogue with village leaders. In response to their expressed needs the staff introduce appropriate motivating statistics about increased production possible with improved practices and ask if they would like to learn more about that. It can then be suggested that if the villagers were to organize their own development project the Centre would be willing to supply the training. If interest is expressed, the leaders are then asked to conduct a similar dialogue with 10-cell leaders. After this dialogue, the 10-cell leaders are, in turn, requested to conduct a similar dialogue with the families in their cell group. After these dialogues at the local neighborhood level, a "development mentality" should be forming throughout the village and a village meeting can be held to discuss and decide upon which specific projects and training programs will be undertaken first.

The specific structure of the program should also be detailed throughout this process of dialogue and finalized in the village meeting. The key to this structure is organizing for the Farmer Scholars trained at the centre to train other villagers upon their return. The general approach has been outlined in the covering memo. The specific application, however, should develop through dialogue with the villagers and be adapted to their local situation.

Based on the agreed upon procedure, the villagers themselves then choose the Farmer Scholars who will be sent to the Training Centre to represent them. These Farmer Scholars formally pledge to pass on their training to the others in their 10-cell group and the group agree to provide the necessary support for the Farmer Scholar. Where necessary, the Farmer Scholar must make advance preparations for his demonstrations to others (eg. preparing his field) before attending the training session.

2.3 Training Course Preparations

The details of the training course should be developed with continual feedback from the villagers as to what is feasible and appropriate within their frame of reference. Teaching materials, also, should be pretested with the village farmers to ensure that they are easily understandable. This detailing of training materials involves a long and important step of simplification of science. One must develop extremely simple materials that cannot only be understood by a village farmer, but also taught by him to his neighbor. the totality of scientific recommendations must be reduced to those few that make a big difference and are feasible for the farmer. There is no need to teach practices which the farmer already does adequately. The course must be designed so as to respect the farmer's experience and to build on what he is already doing correctly.

The second aspect of training course preparations involves the physical development of demonstration sites. For the Field Bean Module, an irrigated location must be available for the establishment of demonstration plots. Six plots should be planted--two weeks, four weeks, and six weeks prior to the commencement of the training--with one plot demonstrating improved cultivation practices and one control plot planted at each time.

External resource people to backstop Centre staff should be involved early throughout the development of the specific training module materials and the obtaining of feedback information from the villagers. They should also commit

themselves to being consulted further after the training during the follow-up period.

The necessary agricultural inputs such as seed, fertilizers and insecticides must be obtained in advance for both the training course and for the training that the Farmer Scholars will carry on with their fellow farmers back in the village. The project should not give these inputs to the farmers. They must be shown that it pays economically to purchase them. Arrangements for these inputs should be made through coordination with the RDD and RADO. If absolutely necessary, loans may have to be arranged to start the process, but this should be approached very cautiously as loans are seldom repaid. Arrangements must be made to have soil analyses conducted.

3. HOW TO TEACH ADULT FARMERS

(To be prepared as a separate booklet. This will be the same for all modules.)

4. MATERIALS NEEDED

(I think this section should be incorporated into "Background Preparations" above.)

5. LEARNING OBJECTIVES

Upon completion of this training module the participant should be able to:

1. double his field bean production through the appropriate application of improved cultural practices (utilization of improved varieties, proper planting, fertilizer application, weeding, disease and pest control, seed selection and storage, and farm planning).

2. teach these improved cultural practices to other farmers in his village.

6. GENERAL TECHNICAL INFORMATION

(A separate technical manual will be provided following the same outline as the lesson plans.)

7. LESSON PLANS

7.1 Course Outline

TIME ALLOCATION (HOURS)

		Present-ation	Ques-tions & Answers	Practice Teaching	TOTAL
1.	Introduction	0.5	0.5	0.5	1.5
2.	Soil Sampling	0.75	0.25	0.5	1.5
3.	Recommended Varieties	0.5	0.75	1.0	2.25
4.	Testing Seed Viability	0.5	0.5	0.5	1.5
5.	Planting	0.75	0.75	1.0	2.5
6.	Fertilizer application	1.0	1.0	2.0	4.0
7.	Weed Control	0.75	0.75	1.5	3.0
8.	Disease control	0.75	0.75	2.0	3.5
9.	Insect control	0.75	0.75	2.0	3.5
10.	Seed Selection & Storage	0.75	0.75	1.0	2.5
11.	Farm Plan and Budget	0.75	1.0	2.0	3.75
	TOTAL	7.75	7.75	14.00	29.50

LESSON 1: INTRODUCTION

Objectives

Upon completion of this lesson the participant should be able to:

1. Cite the data regarding constraints in field bean production, improved practices, and yield increases possible with improved practices.
2. Utilize these data in dialoguing with other farmers to motivate them to apply improved practices.

When to Teach

The participant should teach this lesson immediately upon returning to the village after the training session. This will be about one month before planting.

Materials

Graphs and tables comparing yields with and without improved practices.

Motivating Ideas

1. You can double your production and income through utilizing improved varieties and practices.
2. The additional time and money invested in improved practices pays for themselves many times over.
3. You will develop new skills.
4. A progressive farmer who follows improved practices will become a leader in his community.
5. We can contribute to the national effort for food self sufficiency.

Presentation

The presentation should be dialogical drawing information from the participants regarding field bean cultivation and leading into the data on potential yield increases with improved practices.

Would you like to double or even triple your field bean harvest? With an increased income you could send your children on to high school or even college as well as provide enough food for your family everyday.

Discuss the constraints in field bean production, the practices which overcome them, and the potential yield increases.

Reinforcement Activities

1. Ask participants to cite the data regarding potential yield increases.
2. Ask participants to prepare to teach this lesson. This should include each making his own copy of the graphs and charts showing yield comparisons.
3. Assign four participants to teach the subject. Encourage the others to make constructive criticism.

LESSON 2: SOIL SAMPLING

Objective

1. To know how and to demonstrate how to collect a composite soil sample for chemical analysis.
2. To discover what nutrients are lacking in the soil and how much of each nutrient is needed to assure a good crop.
3. To teach the lesson to Demonstration and Extension Farmers.

When to Teach

Ideally this should be taught two months before planting. It can be taught immediately upon return to the village which will be more like one month before planting.

Materials

1. Spade
2. Panga or sharpened stick
3. Pail or container for collected samples.
4. Old newspaper (for air-drying the samples).

Motivating Idea

Continuous planting on the same piece of land may deplete soil fertility, especially when the nutrients taken by the crops are not replaced by organic fertilizer.

Presentation

1. Introduction: Do you know the exact capability of your soil in terms of food nutrients? Do you know the exact amount of fertilizer needed by your land for maximum yield and profit? The high cost of fertilizer necessitates a knowledge of the type and amount of fertilizer needed. This can be determined through soil analysis.
2. The teach will demonstrate and explain the procedures for obtaining soil samples for chemical analysis' following the guidelines stated in the job instruction sheet.

Reinforcement Activities

1. Provide a question and answer situation to determine whether the participants have fully understood the lesson. (a) How deep is the topsoil

to be collected as soil sample? (b) What precautions are taken in collecting soil samples?

2. Divide the participants into groups of not more than five members. Let each group practice teaching following the lesson plan just presented. Assign six participants to teach the lesson and demonstrate the procedure for collecting soil samples for chemical analysis.

Handout: Soil Sampling for Chemical Analysis

The following guidelines are to be observed in collecting soil samples:

1. Each soil sample should be taken from an area with similar soil type and crop history.
2. Brush away any stone, rubbish or trash before taking the soil samples.
3. Avoid taking samples directly from the fertilized land.
4. Only the topsoil (approximately 15 centimeters deep) is required.
5. One composite topsoil sample is secured by mixing thoroughly samples taken from about 10 different places, more or less evenly distributed over the area. One kilo of a well-mixed composite sample should be submitted for chemical analysis.
6. Air dry your sample with care; keep it away from foreign materials.
7. Place each sample in a separate cloth or plastic bag and properly label each (farmer's name and field number) before sending them to the laboratory.
8. Fill out the form and send it in a separate envelope to the soil laboratory where the soil sample was sent.

LESSON 3: RECOMMENDED VARIETIES

Objectives

1. To recognize the varieties of field bean seed recommended.
2. To know the characteristics of the recommended varieties.
3. To be able to teach this lesson to other farmers.

When to Teach

One month before planting season.

Materials

1. Blackboard, chalk and eraser.
2. Exhibits of ordinary and recommended varieties of plants and seed.
3. Chart comparing recommended and ordinary varieties.

Motivating Idea

Disease and insect pests are everywhere. Old varieties have little or no resistance to disease and pests. Improved varieties are resistant and thus produce higher yields.

Presentation

The National Grain Legumes Improvement Program has developed several bean varieties that will, if properly managed, produce over 1000 kg/ha and can reach up to 1800 kg/ha. Give examples of increased harvests by Farmer Scholars who have used these varieties. Present the Chart comparing yields. List the recommended varieties allowing participants to examine them carefully. Do the same for the seeds. Point out their advantages and the feasibility of their use by Farmer Scholars and Demonstration Farmers.

Reinforcement Activities

1. Ask participants to name the improved varieties and city their main characteristics and advantages.
2. Ask participants to prepare to teach this lesson by copying the chart comparing varieties.
3. Ask four participants to teach the subject and encourage the others to make constructive criticism.

LESSON 4: TESTING SEED VIABILITY

Objectives

1. To learn a simple method of testing seed viability
2. To teach the lesson to Demonstration and Extension Farmers.

When to Teach

One week before dressing seeds.

Materials

1. Four pieces of cloth, 15 x 20 cm. each.
2. Twelve rubber bands or strings.
3. Four paper labels.
4. Four bamboo sticks about 1 cm. wide and 30 cm. long.
5. A box about 15 x 30 x 30 cm. filled with soil 10 cm. deep.
6. Handout: "Testing Seed Viability: Rag Doll Method."

Motivating Idea

Farming is a business enterprise. Seed viability will determine how many seeds are needed for a field of a particular size. Seeds which germinate poorly are unlikely to produce productive plants. Sowing poorly germinating seeds results in wasted money, time and effort.

Presentation

1. Introduction: Although testing the viability of seeds is a minor task, it deserves more attention. Knowing the germination percentage, a farmer can make a reliable estimate of the amount of seed necessary to plant a field. By using a simple test, seed viability can be determined. The result will indicate whether a stock of seed is suitable for planting and will serve as the basis for computing the right amount of seed to use.
2. Following the step-by-step instructions for the rag doll method (Handout) the teacher will demonstrate how seed viability is determined.

Reinforcement Activity

Allow each participant to teach the others this method of determining seed viability. Make suggestions to improve their teaching techniques.

Handout: Testing Job Viability: Rag Doll Method

Job Instruction Sheet

1. Obtain a composite sample of the seeds to be tested. Take the seeds at random, discarding all unfilled seeds, and counting exactly one hundred.
2. Label the test. Write the name of the seed variety and the test date on a paper label.

3. Moisten a piece of cloth. Soak it in water, then squeeze the water out. This helps the seeds stick when placed on the cloth. Spread the cloth on a flat surface.
4. Place the seeds on the cloth. Distribute all hundred seeds evely in rows of ten. Start about 2 centimeters from the edge of the cloth.
5. Place the bamboo stick along the long edge of the cloth.
6. Roll the cloth around the stick. Secure the cloth by fastening both ends with rubber bands or string.
7. Attach the paper label.
8. Let the seeds germinate. Moisten the seeds by dipping the rag doll in the pail of water. About three dippings per day are sufficient to keep the seeds continuously moistened. Store the rag doll in a shaded place at room temperature. Protect the rag doll from rats. The seeds will germinate in four or five days.
9. Count the germinated seeds. After four or five days, count the number of seeds having shoots and roots. All the shoots should be longer than one cm. If not, then seed viability has been damaged.
10. Record the results. The number of shoots counted equals the percentage of viability.
11. Recommendations. Seeds for planting should have a germination rate of 80% or more. If the germination rate is between 60 and 80%, it is necessary to sow more seeds. If the germination rate is less than 60%, do not use this variety unless none other is available.
12. Seed computation: The approximate amount of seed needed to plant a given area can be estimated when the percentage of germination is known. Suppose the germination of a certain seed stock is 85%. If your desired seed rate is 50 kg/ha, then the amount of seed you need to plant one hectare (assuming the amount of unfilled grain is negligible) is 50X (100/85) - 58.7 kg. If the germination rate is 80%, then the amount of seed necessary is 50X(100/80) = 62.5 kh.

LESSON 5: PLANTING

Objectives
1. To learn the importance and techniques of seed dressing.
2. To learn the importance and techniques of planting in rows.
3. To learn the proper spacing for planting field beans.
4. To learn to teach these techniques to other farmers.

When to Teach
One week before planting.

Materials
1. Seeds
2. 40% Aldrin
3. String

Motivating Ideas
1. Proper seed dressing reduces disease and insect damage.
2. Proper spaces gives maximum yield per hectare.
3. Planting in rows eases later operations such as weeding and spraying.

Presentation
1. Give handout on seed dressing and demonstrate the technique.
2. Demonstrate technique of planting in rows with proper spacing.

Reinforcement Activities
1. Students practice teaching each other seed dressing.
2. Participants make their own strings for planting by marking strings at the correct intervals.
3. Students practice teaching each other how to plant in rows.

LESSON 7: WEED CONTROL

Objectives
1. To identify the most common weeds.
2. To know the importance of controlling weeds.
3. To learn the best time and effective methods of controlling weeds.
4. To share this knowledge on weed control with other village farmers.

When to Teach
Two weeks after planting.

Materials
1. Chalkboard and eraser
2. Specimens of weeds
3. Illustration of how weeds compete
4. Chart "Yield Reduction Due to Weeds"

Motivating Idea
Control of weeds will produce better quality and bigger harvests.

Presentation
1. Introduction: Weeds are a major cause of low yields. Here are statistics giving the results of studies on the effects of weeds (Chart).
2. The teacher shows specimens of common weeds.
3. Explore among participants the extent of weed problems they encounter in their villages.
4. Explain the importance of controlling weeds:
   a. They compete for soil nutrients and water, carbondioxide, sunlight and space.
   b. Serve as alternate hosts for diseases and insects.
   c. Reduce the quality of the harvested grains.
   d. Increase labor cost.
5. Teacher explains effective methods of controlling weeds. Weeds can be controlled by preparing the land thoroughly, planting in straight rows, using a rotary weeder, or weeding by hand.

Reinforcement Activities
1. Provide a question and answer period for recapitulation.
2. Divide the participants into groups of not more than five persons and let them work on group activities. Representatives from each group will act as teachers in presenting a similar lesson.

LESSON 8: DISEASE CONTROL

Objectives
1. To identify major diseases, their symptoms and their damage.
2. To learn methods of disease control.
3. To teach the subject matter to others.

When to Teach

After planting time.

Materials
1. Sprayer
2. Mixing container
3. Water
4. Dithiocarbamate
5. Sample of diseased plants

Motivating Idea
Effective disease control produces higher yields increasing the family's income.

Presentation
1. Diseases probably account for more severe bean losses than insect pests in most parts of Tanzania. Best way to prevent diseases are: crop rotation, use of resistant varieties, early planting and destruction of crop residues and use of clean seeds.
2. Demonstrate diseased plant samples.
3. Demonstrate use of sprayer. show how to measure your rate of progress and use this to determine how much water to add.
4. Discuss safety procedures in the use of chemicals.

Reinforcement Activities
1. Have a question and answer period.
2. Divide participants into groups of five. Let them practice teaching the lesson to each other.

LESSON 9: INSECT CONTROL

Objectives
1. To identify major insect pests.
2. To learn methods of insect control.
3. To teach this subject matter to other farmers.

When to teach
After planting time.

Materials
1. Specimens of major insect pests.
2. Plants damaged by insects.
3. Chart illustrating major insect pests.
4. Samples of insecticides locally available.
5. List of insecticides most commonly used.

Motivating Idea
Effective insect control produces higher yield, increasing the family's income.

Presentation
1. Introduction: Insect pests attack every part of the bean plant from roots to the pods and seeds and even grains in storage. They can cause a lot of damage. Best way to reduce damage is to select seeds which are

resistant and to dress seeds before planting. When foliage is attacked or flowers are attacked we can effectively use 25% DDT and lindane formulation (TANGATOX). When pods, seeds, leaves are attacked, Endosulfan or DDT or 0.5.1. of 20% lindane or 0.8 liter of 18% Dieldrin is effective.

2. Teacher demonstrates chemical pest control.
3. Teacher discusses safety hazards and proper safety procedures.

Reinforcement Activities

1. Have a question and answer period.
2. Divide participants into groups of five members. Let each group prepare for practice teaching of insect control, using lesson plans and teaching aids. Suggestions can be given for better teaching techniques.

LESSON 10: SEED SELECTION AND STORAGE

Objectives

1. To learn techniques of selecting disease free seeds for replanting.
2. To learn proper methods of seed storage to prevent loss.
3. To learn how to teach these topics to other farmers.

When to Teach

Before plants turn brown.

Materials

1. Samples of well-stored and poorly stored seeds.
2. Sample of improved local see storage container.
3. Lindane
4. Mixing container or sack

Motivating Ideas

1. The farmer should select his best, disease free seed for replanting to obtain a good harvest the next year.
2. Seed storage losses to insects and rats are very large (30-50%) and can be prevented with proper care.

Presentation

1. Teacher suggests selecting best area of field and carefully roguing out diseased plants and then storing seed from this area separately to be used for replanting.
2. Teacher presents data on storage losses form insects and rats.
3. Teacher calls for discussion of storage methods and losses currently used in the participants' villages.
4. Teacher presents methods of improving current storage methods (mixing seed with Lindane rate guards, improving storage structures, etc.)
5. Teacher repeats safety warnings and procedures.

Reinforcement Activities

1. Question and answer period
2. Participants practice teaching each other the above methods, including demonstrating the use of Lindane.

LESSON 11: FARM PLAN AND BUDGET

Objectives

1. To learn the importance of planning operations and budgeting expenses before planting.
2. To prepare a farm plan.
3. To teach other village farmers this skill.

When to Teach

Before planting season.

Material

Handout: "Farm Plan and Budget"

Motivating Idea

Planning operations and budgeting expenses before planting heightens efficiency, thereby potentially increasing profits.

Presentation

1. Introduction: Scientific agriculture using improved varieties and expensive inputs requires careful regulations of the amount, time and rate of application for fertilizers, insecticides, etc. Furthermore, specific procedures for preparing seeds and soil, planting, weeding, and spraying must be followed. If these cultural practices are not planned properly, production will not increase as expected. Farming practices are clearly within your control. You are a farm operator.
2. After explaining the importance of farm planning and budgeting, the teacher lists items to be included:
   Farm Plan: (Cultural practices and (b) expected date of each activity.
   Farm Budget: (a) items needed (seed, fertilizer, insecticide, etc.); (b) quantity needed, (c) anticipated cost, (d) labor requirements, (e) income from harvest (f) net income minus net expenses equals profit.
3. The teacher asks for group participation as he prepares a sample plan and budget on the board. He distributes the handout.

Reinforcement Activities

After discussion, divide the participants into small groups. Have the participants prepare individual plans and budgets for their farms. Ask several to present their work to the group for evaluation. Others may submit their work to the teacher before leaving.

STATUS OF STOVES RESEARCH at CHUO KIKUU MOROGORO

Trina Laya Sensenig

The University of Dar es Salaam at Morogoro is actively seeking concrete solutions to our worsening fuelwood problem. Improved wood and charcoal stoves will have obvious, immediate, and lasting effects on wood consumption from the environmental viewpoint, and on human energy and time use from the social angle. Fuel conservation hand in hand with afforestation, especially agroforestry, should eventually meet increasing demands for wood products. It is hoped these initial steps in stove research will serve as part of a wide-reaching energy program to continue the development of stoves which are efficient, durable, flexible in use, low cost, easily constructed, safe, and socially acceptable.

Two sections of Chuo Kikuu, Morogoro are involved with stoves. The Centre for Continuing Education (CCE) is working on mud and ceramic woodstoves because village women expressed worsening problems collecting firewood. The Division of Forestry is developing ceramic charcoal stoves for urban areas.

At the CCE work continues on designing, controlled testing, field testing, and developing of training materials on two types of wood-conserving cookstoves. The stoves are adapted to village use, made of readily available materials, and are easily disseminated. They show at least a 50% savings in firewood consumption compared with the three-stone fireplace. Village women, skeptical at first, become highly enthusiastic after using or building these stoves.

Louga Stove

The first type of woodstove is an adaptation of the Benegalese Louga stove. It is built on-site with basically a clayish mud-sand mix, left to dry slightly, carved out, and then air-dried for about two weeks. It is designed to fit a family's bean or ugali pot. The post is sunk into the stove to capture maximum heat from the fire and from hot air passing up the pot's sides. Other metal and ceramic pots can sit either inside or on the rim of the stove. The walls are built thick for strength and heat resistance (about 10 cm at top rim). Given a few hours of hands-on training, village women are able to build their own Louga-type stove. The stove is expected to need occasional patching of cracks, and may need rebuilding after two years. See Appendix 1 for details regarding history, materials, construction, etc.

Controlled water boiling test show 17% heat efficiency (Bindhoven formula) compared to 10% for 3-stove fireplace. In one village in Morogoro district women spend one whole day every four days or so fetching firewood. The following are some of the comments about the Louga stove:

> "One mzigo used to last four days. With the new (Louga) stove one mzigo can last nine days. If it's a big mzigo, it can even last fifteen days!"
>
> "Food boils very fast."

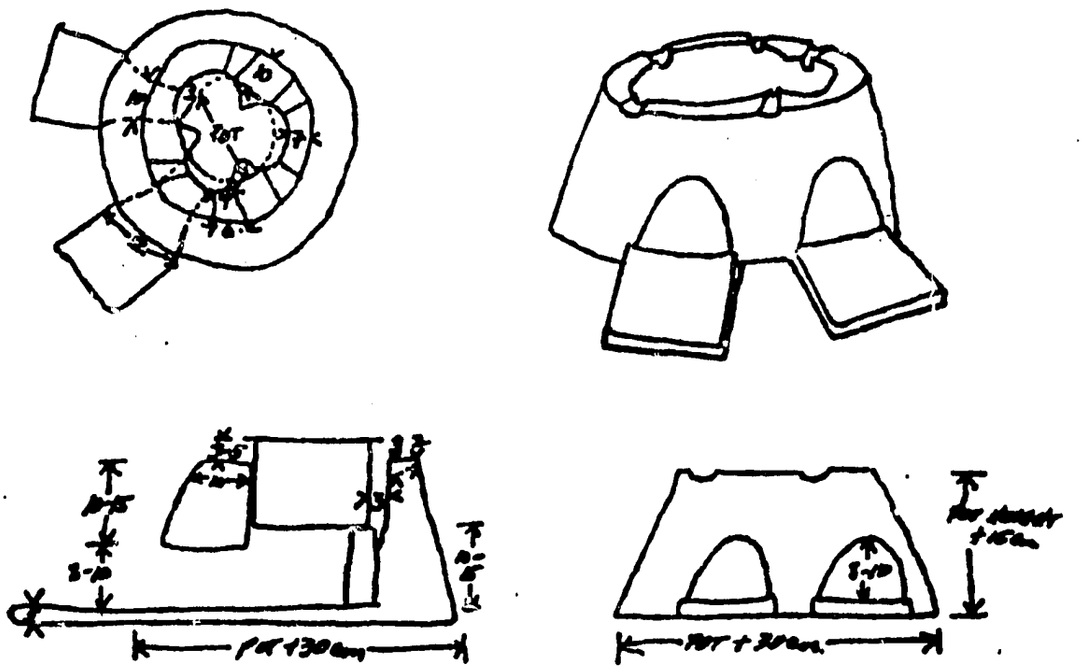

Figure 1: Louga Stove (Senegal)

"After food starts boiling, only one piece of wood is enough to keep it boiling. It hardly needs watching."

"I can cook everything in it--mboga, ugali, ndizi, viazi."

"It is easy to operate even when the wind is blowing."

Pangawe Ceramic Stove

The second wood-stove, a portable pottery stove liner for burning wood, is still in the process of development and field testing. Research is continuing on unfired and fired versions. Initial designs had a grate for wood, while later designs have a grate only for use with charcoal or other agricultural wastes like maize cobs, rice husk, or sawdust. Under controlled conditions, it performs as well if not better than the Louga-type, i.e., 22% efficiency when earth is built up around the stove wall. See Appendix 2 for details regarding hisotry, materials, construction etc.

Initial reactions from the field are very encouraging:

"When I cannot get wood I can use charcoal!"

"Maize cobs (vigehzi) burn well too."

"It is portable."

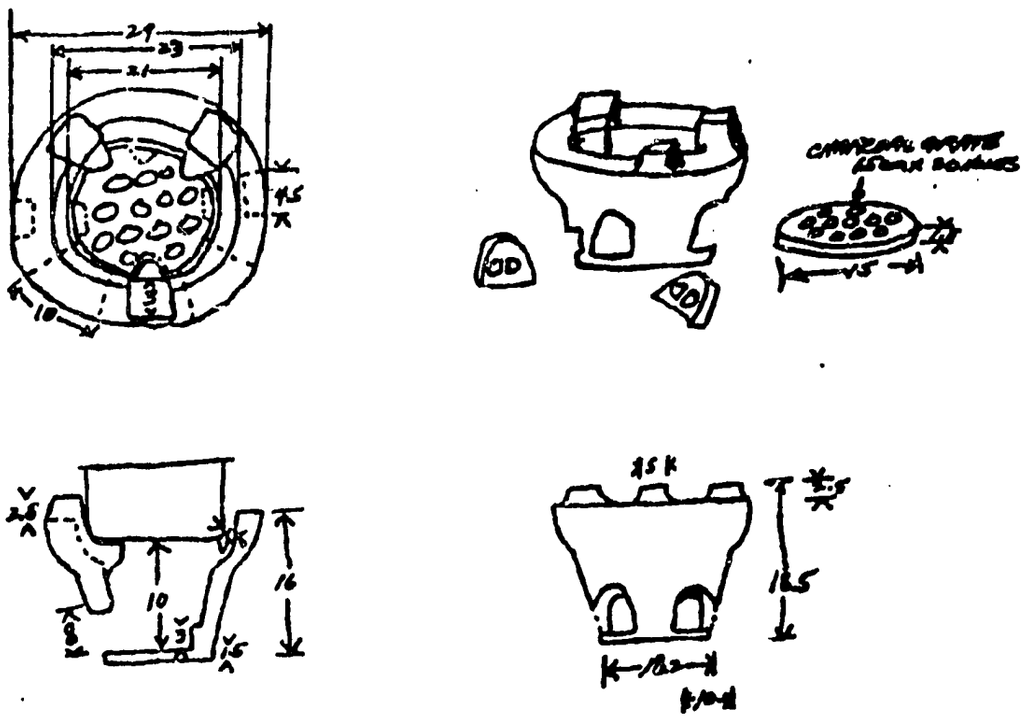

Figure 2: Pangawe Ceramic Stove (Tanzania)

"Local potters can easily produce it with some training."

"It is easy to operate. It needs only a few sticks to cook maharage."

"It can cook everything, even vitumbua with firewood."

The woodstove liner is usable by itself, but may easily break because it is ceramic. A thick (5-10 cm) mud wall of mud and sand built around the liner will strengthen it and improve its heating properties. Currently women in two villages are testing the stoves for suitability in daily cooking.

Tungku Lowon Stove

A modified Indonesia Tungku Lowon, a two-pothole mud stove, was tested under controlled and field conditions.

No further work is being done on the Tungku for several reasons: it has low efficiency (11%); it is difficult to construct without elaborate training and the second pothole is used for extended periods only to heat water. Appendix presents details relevant to this stove.

Wood consumption and stove operation are being monitored. When the necessary design modifications have been incorporated into the prototype

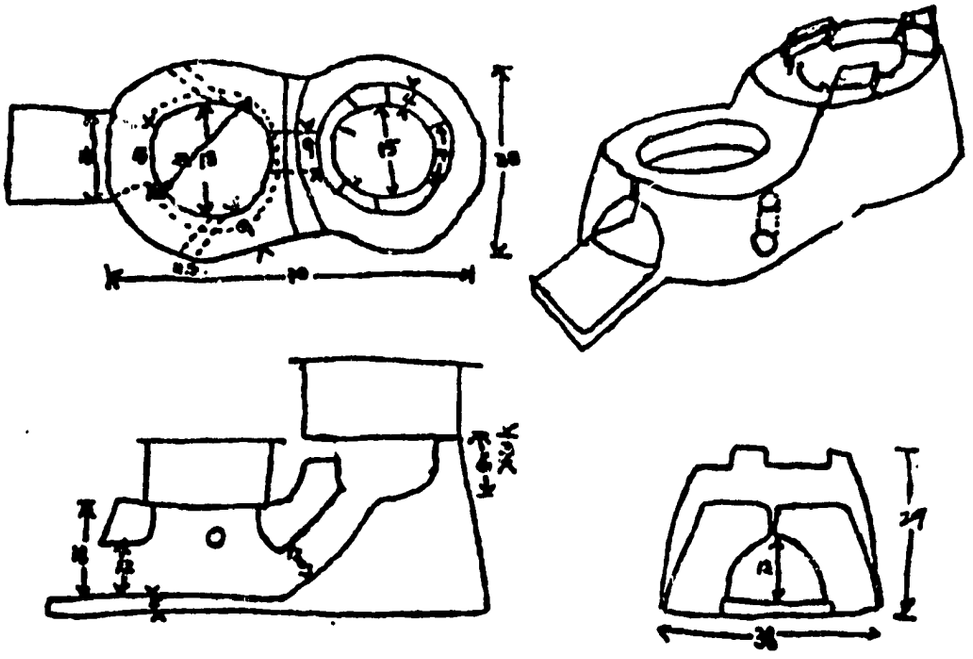

Figure 3: Tungku Lowon Stove (Indonesia)

stoves, training materials will be finalized and made available to institutions directly involved with stove dissemination. Contacts have been established with the following institutions or projects interested in stove dissemination: Community Development, Maliasili, Utafiti Dodoma, Camartec Arusha, TIRDO, Irish Forestry Project in Kilosa District and French-Tanzanian Horticulture Project in Morogoro and Kilosa Districts.

Ceramic Charcoal Stove

The Division of Forestry is continuing research and development of a Thai- type ceramic charcoal stove. Users of earlier test versions eagerly report about 50% savings in charcoal compared with the traditional metal jiko. These reports support laboratory findings of 30% efficiency compared to 20% efficiency of the metal jiko sold in the markets. Cooking time is also reduced because time to bring water to boil is about 38% shorter.

One design problem was cracking after 7-12 months of daily use. The Division plans to incorporate the ceramic stove inside a metal casing--the ceramic liner contributing to the efficiency and the metal part ensuring durability. One or two prototypes will be produced and widely field tested. When the designs are finalized, training of artisans will be initiated in selected urban areas.

The charcoal stove project is currently waiting for IDRC funding for Phase 2 to continue research on new prototypes. Dissemination or extension on selected models is expected to start within a year after resumption of research.

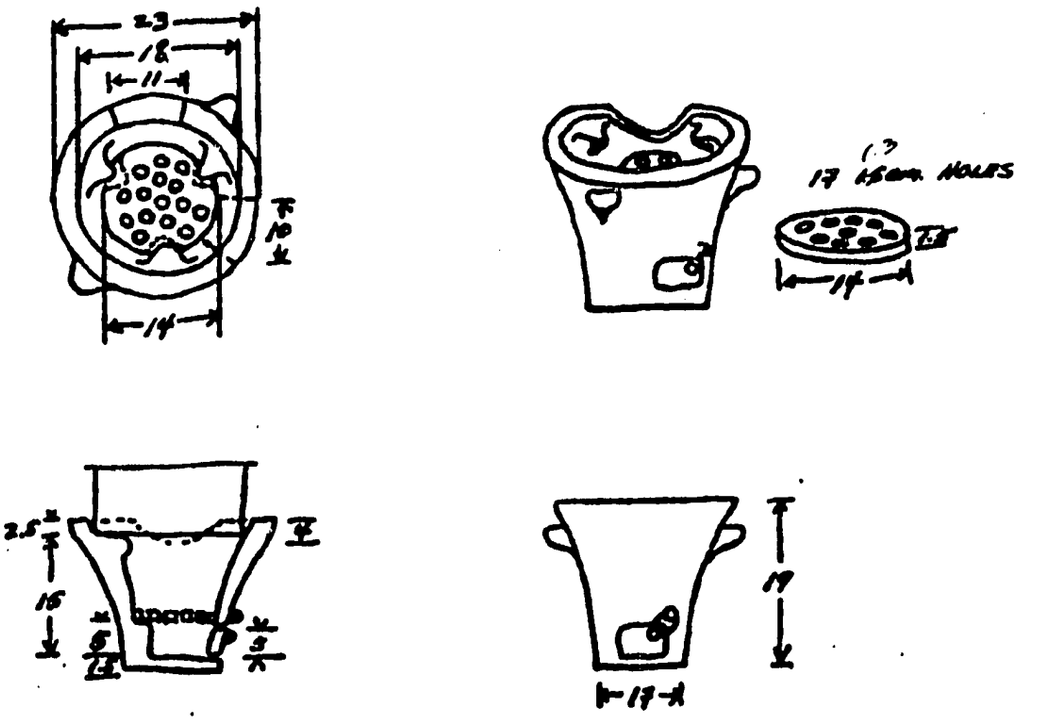

Figure 4: Ceramic Charcoal Stove (Thailand).

Details relevant to this stove are included in Appendix 4. Appendix 5 presents a detailed discussion of the procedures used in testing the different stoves.

The initial problem motivating our work on fuel-conserving charcoal and wood stoves was firewood-deforestation. The Centre for Continuing Education and the Division of Forestry at the Morogoro campus have gone a long way in making research responsive to people's needs and therefore making it useful socially as well as environmentally.

For more information on woodstoves, contact:

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Centre for Continuing Education
P.O. Box 3002
Chuo Kikuu
Morogoro, Tanzania

and on charcoal stoves

Dr. W. Ringo
Division of Forestry
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Chuo Kikuu
Morogoro, Tanzania

Appendix 1

Louga Stove

History. Developed by the village women of Louga, Senegal in West Africa, where the meals are cooked in a big pot. The above design is an adaptation for East African conditions: aluminum straight sided pots and round-bottomed ceramic pots are used. Forceful stirring is necessary for cooking maize porridge. Big pots of water are heated; hot air/smoke is desired for keeping food and roof dry.

Description. The Louga stove is a fixed mud stove made of clayish soil plus sand. The cooking pot sits partially inside the firebox; the household chooses a bean or ugali pot which is used most often (especially bean) for which the stove will be built. Three "stones" or potseats are attached to the firebox wall; the wall between these potseats are carved out for hot air exit. Five exit flues are carved up at the top for big pots that sit on the rim. Stove height depends on the pot height, and should be so that the pot rim is 3-5cm above the stove rim. Rim exit flues are 5cm wide x 3cm deep towards the centre and 8cm x 2cm at the outer edge. Two relatively small doors are carved out (10cm wide x 8-10cm high, arch-shaped) instead of one large one to keep the bridge above the doorways as thick as possible.

Materials. For an average family the total mixture volume will be about 80 litres, unpacked. Lorena mix: 1 part clay, 3 sand; or clayish-mud + sand + grain husk.
Termite mound mix: 1 part crushed termite mound, 3 sand, ¼ c salt.

Construction. - Build up the floor 5 cm thick. Place the cooking pot (or a big can smaller than the pot) at the centre of the firebox. Build up the walls, raising the pot regularly, until the total height is about potheight + 15cm. Remove pot, attach 3 potseats around the firebox. Leave to dry 2-4 days. Carve out rim exit flues, firebox exit flues and can. Polish all surfaces with a spoon or smooth stone. Carve out the doorways. Let dry 2 weeks.

Testing. Eindhoven efficiency: 17%; Specific consumption: high power .21; low power 33; Standard specific consumption: (high power 1.39; low power 0.75; Burning rate: (16.7g/min; 7.3; Boiling: 2 l water.

Appendix 2

Pangawe Ceramic Stove

History. Adaptation of the Thai ceramic charcoal stove to be used for firewood in Tanzanian villages. Can be made by local potters with a mold. Unfired designs were tested, they burn well, but need thick (5cm minimum) walls for durability. Fired designs are more durable. Users are encouraged to build a 5-10cm mud wall (can be lorena mix) around the stove for strength and insulation. The potseats at the rim can be built up so that pot weight can be supported by the mud wall instead of ceramic.

Description. The Pangawe ceramic stove weighs about 6kg and measures 18.5cm high x 29cm diameter at the rim. The firebox is 10cm high (for a medium sufuria sunk inside the stove) x 15cm diameter. A charcoal grate can be placed on 3 small grate seats attached to the firebox wall to burn charcoal and agricultural wastes like maize cobs, sawdust, rice husk. Big pots can sit at the rim. The two arch-shaped doors are 10cm wide at the base x 8cm high, with doors for simmering. Two rectangular areas, one on each side behind the doors, 4.5cm side x 3cm high, are pushed into the firebox to serve both as handles for the outside and as grate seats inside. Both unfired and fired stoves are made the same way in molds of clay or wood.

Materials. Total raw mixture volume is about 5 litres. Currently experimenting on a durable mix of crush and sieve: 6.5 part clay, 1.5 black rice husk ash (or other grass/grain stem ash), 2 parts sand.

Construction. Mix clay with water till soft, + ash. Let sit at least 3 days, better 1 week or more. Mix in sand. Push the clay body down into the mold, then draw up the clay to the rim, keeping walls at least 3 cm thick. Attach potseats and 2 grate seats. Let dry 1 day. Cut out top exit flues, then remove from mold. Polish all surfaces with back of spoon or smooth stone. Cut out 2 doors, cut and push in handles. Check fit of pots, level and enlarge potseats if necessary. Make 2 grates.

Testing. Unfired version, earth wall. Specific consumption: high p. 23; low p. .36; Eindhoven efficiency: 21% Standard Specific Consumption (.76 high power; .54 low power); Burning rate: 15.2:6.6.

Appendix 3

Tungku Lowon Stove

History. Developed at Dian Desa, Indonesia and later at Sarvodaya, Sri Lanka in an effort to avoid using chimneys which are expensive. They need care/maintenance and do not allow space heating or use of heat/smoke to dry food or grass roof. Modifications are incorporated in the above design to suit Tanzania's range of pots and forceful cooking of ugali (maize pate), and the use of big heavy pots for heating bathing water.

Description. The Tungku Lowon is basically a carved out mud block. The outside dimensions are 70cm long x 38cm wide; the first pothole is 18cm high while the second pothole is 24cm high. The base of the firebox is 22cm in diameter and has one 2.5cm diameter air inlet hole at each side, angled towards the second pothole and upwards toward the cooking pot. The connecting tunnel is 8cm high x 9cm wide, arch-shaped, allowing heated air to exit via the second pot. The air flows under the second pot and past cut-outs having a cross-sectional area of at least $75cm^2$. The second potseat is 6cm above the first. The first pothole is 18cm diameter, the second 15cm.

Materials. Indonesian mix: 1 part clay, 2 parts brick dust, 2 parts sand, 1 cowdung, ½ woodash, 1 rice husk. Lorena mix: 1 part clay, 3 sand. (Or clayish mud + sand).
Termite mound mix: 1 part crushed termite mound, 3 sand, and for the whole stove about ¼ c salt.

Construction. Build up the floor 5cm thick. Arrange a banana trunk piece where the door should be and an 18cm can/pot for the first pothole. Build up the stove until the outside height is 23cm. Then put a 15cm can/pot (or smaller) where the second pothole should be and build up the second potseat until it is 6cm above the first. Remove the cans. Let dry 2 days or so. Carve out and enlarge the potseats, air inlet holes, air exit flues. Carve out the connecting tunnel. Remove the banana and enlarge the door. Let dry 2 weeks. Dimensions should be exact; need training.

Testing. Eindhoven efficiency: 11%:. Specific consumption: high power 32; low power 32); Standard Specific Consumption 2.57 high power; 1.16 low power; Burning rate: 14.5; 8.4; Boiling: 2 l water.

Appendix 4

Ceramic Charcoal Stove

History. Originally developed in Thailand in the 1920's. There the stove is sold as a plain ceramic stove, or is enclosed by a metal casing with insulative ash in-between sealed with a weak cement mixture. Figure 4 is a modification of the Thai bucket stove for Tanzanian cooking.

Description. This fired ceramic charcoal stove will accommodate 20cm diameter pots or less on the three potseats located just below the rim, while bigger pots will sit on the rim. Cold air enters through a 5cm x 10cm door with damper up through the grate. Hot gases exit through one carved-out semi-circle at the rim located at an angel from the door. Below the grate are three clay cylinders attached to the wall which serve to support the grate. Wall thickness is about 1cm at the base thickening to 3cm at the rim, while the floor is 1.5cm thick. Two handles are attached on the outside at each side of the door.

Materials. About 3 litres of clay mixture. Experimentation continuing on a durable clay mix, consisting of clay, ash, and sand.
Original Thai mix: 3 parts river clay, 1 part rice husk ash (black); Ash insulation; metal casing; cement plaster (100g cement+200g sand).

Construction. Clay is mixed with water and allowed to soak covered. Ash and sand are pounded in before molding a ceramic or cement mold open at the top and bottom is used. The clay mix is packed down at the bottom of the mold and pulled up to the rim. Grate seats, potseats, and a grate are made. Stove is allowed to dry for one day, removed from the mold, and polished first with a maize cob then with a small mango seed. Exit flue and door are carved out. Allowed to dry at least one week, then fired in a kiln to 800°C.

Testing. Heat transfer efficiency 31% compared with metal jiko 21%. Time to boil 2 litres water is 18 minutes compared to 29.

Appendix 5

Procedures for Testing Stoves

Water Boiling Tests under controlled conditions:

High Power Phase: bring 2 litres (about litres (about 2kg) of water rapidly to a boil, then maintain boiling at same level for 15 minutes. Measure remaining fuel and water. Return fuel and pot to the stove for next phase.

Low Power Phase: maintain simmering (within s^{o}C of boiling point) for 60 minutes, keeping minimum fuel and/or closing air entrances. Measure remaining fuel and water.

Pots used: 20cm diameter x 8.5cm height aluminum sufuria with lid. With Tungku Lowon, the second pot was a 23cm sufuria.

Fuel: cassia siamea with 15-20% moisture content. Moisture content was measured with an Agua-Boy moisture meter. Wood was air dried 2-3 months, then split to be about 2-3 on diameter.

Ignition: 3 small sticks were dipped to a depth of 8cm in kerosene for 5 seconds then excess tapped off (about 10g kerosene). These were placed in the stove with about 5 pieces of firewood, then ignited with a match at which point timing started.

Boiling point: $B.P. = 100^{o}C - \frac{(\text{altitude (m)})}{300}$

for Morogoro which is about 500 m above seal level = 98.5^{o}.

Instruments: mercury thermometers.

Field Test: a village woman is asked to use the stove for 2 seeks or more. Her subjective estimate of how long one headload (mzigo) of firewood normally lasts in her household is compared for a 3-stone fireplace and the test stove. One head load varies from 20-40 kg. Other questions are asked about difficulties in stove operation, time to boil, what was cooked, number of people in the household, and desired changes if she were to have such a stove of her own.

Efficiency: Eindhoven formula (in Micuta, 1981) which includes evaporative heat as useful heat. Efficiency reported here is for the High Power Phase. For simmering periods this figure decreases and is not very appropriate.

$$\text{Efficiency} = \frac{ms.C(Tb-ti) + mv.E}{mf.B}$$

where mw = initial amount of water in pan (kg)
mv = amount of water evaporated during experiment (kg)
mf = amount of fuel burnt (kg)
C = specific heat of water (r.s kJ/Kg.K)
tb = temperature of water (^{o}C)
ti = initial temperature of water in pan (^{o}C)

R = heat of evaporation of water at atmospheric pressure and $100^{o}C$ (kJ/Kg) (2256.9 kJ/Kg)
B = combustion value of wood used (kJ/Kg) (19883 kJ/Kg)

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ANNEX J

EXAMPLES OF FIELD TRIP REPORTS

1. Visit to Iringa Rural Development Training Center
2. Visit to Iringa and Mbeya

COORDINATION VISIT TO IRINGA RURAL DEVELOPMENT TRAINING CENTRE

February 3-4, 1982

V. Rutachokozibwa & Barton Sensenig
Department of Agricultural Education and Extension

Summary

Our visit was extremely successful, resulting in a specific action plan for coordination between TRDC (Training for Rural Development Center) and CCEA (Center for Continuing Education in Agriculture). This plan is outlined in the interview with the Center's principal, summarized below. Interviews were conducted with (1) Principal Okeyo, (2) Vice-Principal Mbuyu, (3) Audio-Visual & Communications Trainer Senyangwe, (4) Women's Concerns & Cooperatives Trainer Kabalele, (5) Livestock Trainer Kaseko, and (6) Agricultural Trainer Gadau.

Principal

It was agreed that there are five major areas for cooperation:

1. Training of Trainers & Extension Staff

   Since this work is undertaken by both centers, these efforts should be coordinated. This coordination can be through coordination of teaching materials, audio-visual materials, exchange of information and physical involvement as detailed below. We offered the CCEA as a possible physical location for training while new TRDC centers are being constructed. We noted that Faculty of Agriculture, Forestry and Veterinary Science staff could be made available to assist in training of trainers.

2. Teaching Materials

   We outlined the CCEA's objective of developing teaching modules and the need for coordination with TRDC to (1) identify the priority modules needed and (2) revise and test modules to make them practical and effective at the operational level. it was agreed that the following concrete steps would be undertaken to fulfill this objective:

   a. CCEA will supply a list of currently known modules which could be revised and adapted to local conditions. Ruta will carry this list to TRDC on February 13.
   b. TRDC will identify priority modules from this list.
   c. CCEA will coordinate with Faculty of Agriculture Departments, Ministries, Research Centers, Parastatals, etc. to develop a draft module appropriate for local conditions.

d. TRDC will revise and test the module in actual operational conditions.

e. CCEA will reproduce the revised module.

3. Audio-Visual Materials & Capability Development

The audio=visual units of the TRDC and CCEA should cooperate for their mutual benefit. This coordination will begin with the visit of CCEA audio-visual specialist, David Giltrow, to TRDC, hopefully on February 13, when Ruta returns. Coordination should include:

a. Exchange of lists of Audio-Visual equipment available.

b. Exchange of experiences.

c. Exchanges of visits & cooperation in short-term communications training.

d. Exchange of lists of materials (slides, tapes, film strips, etc.) that each center has and lists of know materials available from other sources.

4. Computer Processing & Training

We suggested that TRDC village surveys might be analyzed on the CCEA computer while they await the arrival of their computer.

a. Both TRDC and CCEA will check on the feasibility and timeframe for potential computer processing.

b. CCEA could conduct a short training session on computer analysis of survey data for TRDC staff.

5. Exchange of Information & Physical Involvement

a. Ruta will return February 13 to participate in the next village intervention (which includes the village survey).

b. Hopefully Dave Giltrow, Audio-Visual Specialist, will be able to accompany Ruta.

c. Ruta will bring a schedule of CCEA activities to further coordination.

d. We received: Schedule, Curriculum, 2 Questionnaires.

Vice-Principal

The Vice-Principal summarized TRDC activities as follows: Overall objective is to increase production at the village level. In Phase I, which is just completed, they had this one center and worked with originally 8 and later 16 villages. Phase I involved four regions: Iringa, Mbeya, Ruvuma, and Rukwa. Ten of the Center staff (the Principal, Vice-Principal and Trainers) were sent to the USA for training. In each village they began with "Village Intervention" in which about 80 people would be trained in a two-week session held in the village. Trainees would include members of the village committees,

outside officials like the Ward Secretary, Party leaders, UWT leaders, people leading special projects (e.g. Maize mill, tractor, etc.), "best farmers" recognized by the villagers, and ordinary villagers. Training focused on project management (needs assessment, priority establishment, planning, programming, implementation, evaluation). Technical training is also planned but was not carried out in Phase I. As part of the Village Intervention a survey is carried out and a quick analysis of needs assessment is made.

Fifteen of the eight villagers are then invited to attend a four week residence course at the TRDC Center. One village is invited from each region so that a total of 60 trainees attend each course. Four courses were held in Phase I to cover the 16 villages. Those invited were mostly village leaders in a position to use the management training afterwards. They tried to get 20% women, but sometimes couldn't. In Phase I the residential training was also focused on managerial skills. In PHase II there will be 4-week technical courses in addition to the 4-week managerial courses. The technical training for the villages previously involved will be conducted in Phase II. In the last week of the residential course the trainees focus on "team building" in which a specific action plan for the village is developed. Then, after two or three months the trainers to to follow-up in the village to see how the plan is progressing.

During Phase I a total of 24 trainers were trained for the four regions. They represent five ministries: Kilimo, Livestock, Natural Resources, Cooperatives and Community Development. The trainers are mostly Bwana Shamba at the Diploma level, nominated by the Regional Development Directors.

In Phase II, which is just starting, TRDC will cover 350 villages in 6 years. Thus, new training centers will be added. Three new centers are scheduled to begin training in June 1982. Thus, in addition to Village Intervention and Residential Training, the project will be undertaking Training of Trainers (TOT). Two TOT sessions are scheduled: Mid February and August. We expressed special interest in these sessions since we also conduct training of trainers. They expect 3-40 trainers to be trained at each session.

TRDC will be beginning Phase II village interventions on Feb. 15 at Mfindi Village in Iringa. (Other interventions will begin Feb. 8 & 10 in Mbeya and Feb. 10 in Ruvuma). The baseline survey and needs assessment is conducted as part of the Village Intervention. There is one day of "climate setting", followed by 2-3 days surveying and then 1 day for quick analysis. A representative sample of 40 villagers is selected in addition to the 25 Village Council members and other village technical personnel, adding up to about 70-80

people surveyed in all. They have three questionnaire schedules: (1) answered by all respondents, (2) Answered by Village Council and technical personnel, and (3) Completed by the interviewer in a discussion with village leaders. It was agreed that Ruta will return Feb. 13 to participate in the surveying beginning February 15.

Audio-Visual & Communications Trainer

The Audio-Visual specialist demonstrated the following equipment: overhead project, Closed-circuit TV, Electronic Stencil machine, Movie camera & projectors, and slide camera and projectors. The Principal added that they have a photocopier that they have not yet used because they need someone to show them how to set it up. The AV specialist noted the following equipment problems: (1) the scope does not work for the closed-circuit TV. (2) The slide camera has only a regular lens whereas they really need a wide-angle lens.

The AV Specialist showed us handouts prepared with the electronic stencil machine and large posters. He also shows films obtained from the AV Institute in Dar es Salaam. He hasn't had time to prepare slide shows etc. of his own as he has been occupied in his role as communications trainer.

Women's Concerns & Cooperatives Trainer

Phase I didn't have a specific women's component. In the training of Village Councils we aimed at 20% women. At a minimum, we tried to get 4 women from each village. This was sometimes difficult. It was hard to get them to come for one month. In addition to the need to take care of children, they are the most traditional, shy, and least educated. In the end we had 15.7% women. At the training center the women were always in a minority and shy. We had to take special measures to make sure they would participate.

In response to my questions she said: She does not recommend specific training sessions for women only. An activity will not succeed unless the men are in on it too. And, if there were "separate but same" training sessions for men and women the men would still be suspicious. Thus, men and women should be trained together. There are some activities which are more appropriate for women where they might be in the majority. During their village interventions they sometimes had separate discussion for men and women and then dame together afterwards to list and compare the results of the two discussions. I asked if women would be more favorable towards coming if the residence training were shorter. She said maybe but was dubious. She cited transportation problems and said some might just arrive for the last day. Since

they have 15 per village they currently provide transportation. She wasn't sure a sufficient amount of information could be taught in a shorter period.

In Phase II there is a specific women's component. They did not have a Home Economist in Phase I, but have recently hired one as a trainer. However, she has run into some difficulties and has not yet arrived. (She is the only trainer who has not yet arrived. The others arrived recently.)

The did a needs assessment of what programs the women want in Phase I. She listed the results as: Knitting, Sewing, Embroidery, Child Care, Cooking, Nutrition, Home Management & Budgeting, Project Management & Bookkeeping (for women's projects). Since she had not mentioned food preservation, I asked about it and she said yes she assumed that was included in cooking. When I asked what priorities she put on these she replied: (1) Nutrition, cooking & food preservation, (2) Child Care, (3) Sewing & Embroidery, (4) Home management and budgeting, and (5) knitting. (Of course, they have already undertaken the project managing and bookkeeping.) Knitting was put lowest because the necessary materials are not available.

On Feb. 13, the Women's Concerns Trainer is going to Mbeya to meet with Prof. Mbilini of the University of Dar es Salaam to do research on income generating projects for women. She will stay there one month.

TRDC has trainers from the Community Development Department which are doing the training related to these women's issues. I met the Regional Director of Community Development (Mathilda) who happened to come in the office. Community Development is under the Prime Minister's Office. It is located in Dodoma. She suggests that Trina talk with Mrs. Mary Chips (a Tanzanian) who is director of the Community Development Center at Rungmba, about 70 kilometers further towards Mbeya from Iringa. They have been conducting classes for a long time, solely for women on women's issues. Their trainers attended the "Training for Trainers" in the USA. They just came back in July. They started training in December. Their courses include nutrition. They are now doing training of trainers. The address of this center is: Mrs. Mary Chips, Director/Chuo cha Viongozi/Rungemba.

The Women's Concerns Trainer has been to the USA twice for training at the USDA Guest Wing in Alexandria--three months in 1980 and another 3 months in 1981.

Livestock Trainer

At the Center they have a dairy unit of 60 cattle (which includes 12 milking cows), a piggery with 80 pigs, and a poultry unit with 468 layers. He

is new and in the process of identifying needs. He will be developing the training program afterwards. He is interested in cooperating on teaching materials. He has only a few books now. He has requested materials from USAID, but even those required in Phase I have not yet arrived.

Agriculture Trainer

He has not yet held any training programs. He is setting up demonstrations. These demonstrations also serve as trials of the techniques. He has already done identification of needs and these are the resulting demonstrations:

1. Planting Dates: Problem is unreliable rainfall. He is trying alternative planting dates as a demonstration. Considering a strategy in which the farmer may spread the planting dates to make a safer strategy rather than just planting at the first rain. Advice must vary according to location. I asked if he has detailed rainfall data by location. He said no, but it is very much needed. They need a raingauge.

2. Sun Hemp (Crotaliana Pallida): This is introduction of a new crop. It is a leguminose plant that can be used as animal feed, green manure and for nitrogen fixing. He suggested also it might be planted to crowd out other weeds. This crop was introduced by missionaries and has proved very resistant to local diseases. (Still dies in the dry season).

3. Oxenization demonstration is planned. They have two animals already castrated and have a trainer. They are awaiting the arrival of the ox cart. They have already a plow and five-prong cultivator (factory produced). Some villagers currently use oxen for some things. They want to show the full range of possible uses of oxen--transport, plowing, cultivating, weeding, spreading fertilizer, harvesting, etc.

4. Horticultural Unit: He plans to make circles of various components feeding into each other. For example, they currently have a biogas unit. Its power could be used to run a pump for irrigation. Along with this one could have a fish pond. With the irrigation one would do gardening, etc. (I mentioned raising rabbits to let the droppings feed the fish & putting compost in the fish pond to encourage algae). He currently lacks the tank in which to store water. An advisor from AATP (Arusha Appropriate Technology Project) will help. (I have a book on Low Cost Water Tanks that I could loan).

5. Maize is demonstrating good husbandry. Wants to demonstrate intercropping with Sun Hemp.

6. Beans: Canadian beans--high yielding variety.

7. Sunflower: Needed for the oil. The cake can be fed to animals. AATP will show them how to make a press so that farmers can press the oil locally.

8. Sun Hemp: In addition to his trial plot he has five acres for feeding the animals and is also planting it intercropped with maize.

9. He has a fertilizer demonstration showing use of different amounts. (maize)?

10. He has a spacing demonstration (Maize?).

11. Pasture: He notes that grass grows fast and when it is mature it is useless as feed for animals. So, he is trying harvesting the grass before it is mature and using it as hay during the dry season.

I quoted my conversation with Lloyd Pickett as follows: Gene says we don't need any more training packages--the farmer already knows about fertilizer etc. He needs help with getting physical inputs etc. not education. Lloyd says main problem re maize is weeding (since some fertilizer is available). He recommends using a five-prong cultivator with oxen to solve the labor problem in weeding. This would cut work to one-fourth.

The trainer commented: (1) We still need the complete training packages. The farmers may know about fertilizer but need the details of how much to apply, when, where, on which soils, how, etc. (2) He agrees that weeding is important. Herbicides were recommended, but are not available. We need to check which method is best, including testing this method with animals. Another possible approach is planting sun hemp at the right time to choke out the weeds.

REPORT OF TRIP OF BARTON SENSENIG TO IRINGA & MBEYA
June 17-19, 1982

Summary

I departed Morogoro at 6:00 a.m. Thursday, June 17, and returned at 5:30 p.m. on Saturday June 19, traveling in my own car. I gave Julian Consolves a ride to and from Iringa. I accomplished three jobs: (1) I scheduled a training course at the Training for Rural Development Centre (TRDC) Iranga to be held July 15 & 16, on coding of survey data for computer processing. (2) I taught Bwana Shambas at Uyole, and (3) I established a connection with Mr. Braedt of EEC in Iringa who has been working on Oxenization for four years. He provided me with a training module booklet and will request the CCEA to run training programs in Oxenization for trainers of form-4 leavers. A Mr. Bachman will visit us to followup.

TRDC Iringa: I met Richard Mandara, UNICEF Box 4076 DSM & TRDC. I arranged to teach a two-day seminar on coding of survey data for computer analysis which will be held at the Centre in Iringa on July 15 and 16. Participants will be their field workers from the Southern five regions who are involved in their survey work. They provided me with four forms:

Schedule 1:	Village Survey (for all in sample)
Schedule 2:	Additional Questions for Village Council Members & Sectoral Technicians
Schedule 3:	Questions for Conference with Village Chairman, Village Secretary, Village Manager, and Appropriate sectoral technicians.

Interviewer Rating: Description of Interview.

I will make codesheets in advance for the training. I will drive to Iringa on Tuesday, July 13, and return Saturday, July 17. I have reservations at the Lutheran Centre.

UYOLE Seminar: Mr. Mkima & Mr. Ponjee Assisted me.
I taught 24 Bwana Shambas from three Southern regions on two topics: "The Use of Objectives in Extension Programme Planning" and "The Relationship Between Agricultural Extension Programmes and Other Rural Development Programmes." The training included a practical exercise in which the Bwana Shambas broke into six groups and each attempted to develop a plan. It showed that they need more work of this sort. They need practice in developing a concrete plan that is feasible with the existing resources. Major problems they identified were (1) problems related to extension (eg: need of transportation); (2) problems related to agricultural inputs (eg: lack of them, inability of farmer to purchase); problems related to planning (need for local input), etc. There were supposed to be 50 bwana shambas. Others could not attend due to lack of transportation.

Oxenization

On the advice of Mr. Ponjee of Uyole, I contacted Mr. Braedt who is a Belgian working for EEC (The European Economic Community) in Iringa. He is working on oxenization. His Office is Room 20 in the Iringa Regional Office. They have been working in Iringa for four years.

He gave me a training booklet on Oxenization that they have been using for the past two years. They made it up based on a booklet from FAO and a booklet from INADES. It has worked well in two years f practical usage. It needs some revision.

He is very interested in arranging a training course for trainers of Oxenization at the CCEA. He is also interested in arranging refresher courses for those who already know it. They have been doing this with the Farm School of the YWCA in Moshi and have great troubles with transportation because it is so far away. They hold a three month course at Uyole every year for form 4 leavers on oxenization. It is a difficult subject and their standard is low and there are not enough trainers, so they only train 25 field assistants per year, whereas they need 75 per year.

In addition to oxenization, their other project is dairy. They also have a booklet on dairy. He notes this is not as widely applicable.

We will receive a visit from Mr. Bachman who is the extension worker with their project. They have trained a total of 401 field assistants in oxenization.

Bibliography

GTZ (the German USAID) has just recently published a large handbook on organization. He has ordered it, but not yet received it. Get the address of GTZ from Weber and order it.

FAO has two publications on oxenizations. There is the small booklet on which they based their manual and there is also a thick book on it. The FAO book is good although it comes from some years back. It has a very good analysis of the relative economic efficiency of oxen and tractors, etc.

INADES has a booklet on oxenization which they also used as a basis for their manual.

The French Ministry of Development has recently put out a booklet, "Techniques Rurales pour l'Afrique: Oxenization", which can be obtained through the French Embassy in Dar Es Salaam.

I showed Mr. Braedt the series of plans we have from Intermediate Technology in London for oxen-drawn implements. He noted the numbers to order them from London.

Oxenization at Uyole

The two men involved with oxenization at Uyole are: Mr. Kusaga and Mr. Nyamasagi.

Bakobi interviewed Mr. Kusaga. Mr. Nyamasagi was not present at Uyole during this period.

ANNEX K

EXAMPLES OF PAPERS PRESENTED

1. "Some Guidelines for Forestry Extension in Villages" (Giltrow)
2. "Thinking about a Communications Textbook" (Giltrow)

SOME GUIDELINES FOR FORESTRY EXTENSION IN VILLAGES

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Prepared for "Seminar on Community Forestry in Kilosa District",
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Centre for Continuing Education, Morogoro

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This material is based on a draft section of a Forestry
Extension Manual to be published in 1984 by the
Forestry Resources Division, FAO/Rome. The
author is solely responsible for
the contact.

SOME GUIDELINES FOR VILLAGE EXTENSION

There are not any universal rules of extension; the exceptions would be too many for us to count. But a few guidelines should be helpful for those charged with implementing a community forestry program who feel uncertain about the task. As with any advice, it should be considered and then adapted or discarded to suit the conditions.

1. Put yourself in the villager's position. We are never completely able to "walk in someone else's footprints". But the effort to feel the forces which surround a villager will make a difference in understanding what unfolds in the course of a forestry program. The lack of rainfall, death of a close relative, fear of getting old without adequate provision, debilitating disease, and religious beliefs can contribute to a sense of not controlling events. This, in turn, can lead to a lack of comprehension of "five year plans", "harvesting in 15 years", and "we'll see what happens after three years". Similarly, expectations of freely contributed labor may be unrealistic during periods of heavy work such as at planting and harvesting times.

2. Start small; try for a small success. When people work together for a mutual purpose and achieve that purpose, the effect is very positive on everyone. A sense of "we can do it" overcomes the all too prevalent "it is hopeless". But to fail is to feel betrayed, or at least as if something has been lost. Indeed, that loss is in the form of hard work, trust, and time, which cannot be replaced. A series of modest, small successes may take more work and time for the extension worker than a single full-scale village mobilization. But too often people see the mass turnout itself as the success, rather than what is lastingly provided.

Given a series of small successes, the inevitable failures will be taken as acceptable risks by people--even seen as learning experiences where mistakes can be identified and overcome. Sometimes this means the extension worker must help the villagers to keep their ambitions in perspective; often the grand scheme is the sincere effort of the villagers themselves. They may underestimate the time, labor, and resources required to put in a hillside of terracing against erosion. The classic proverb, "A journey of a thousand miles begins with the first step," often applies when designing community forestry activities.

3. Only promise what you are sure can be provided. As an outsider tied in with a larger institution such as government or an externally funded project, the extension worker is seen by the villagers as a representative of generous assistance. The temptation of the extensionist is to support the people, gain their admiration, and get on with the program. A few bags of fertilizer, use of a truck, a visit by a regional dignitary--all seem feasible promises in the enthusiasm of a meeting. But when the promises fail to materialize, the trust of the villagers in the extensionist can quickly fade.

4. Stay within your technical knowledge; get outside advice when necessary. This is related to not overstepping limits. Despite good quality training, not every course equips the extension participants to deal with all technical questions. It is better to admit ignorance and be able to get good advice--perhaps in another village--than give misleading information which will, again, discredit future work. One aspect of the Training and Visit Extension System is frequent contact with subject matter specialists or training officers

with access to technical information. An inappropriate tree species planted by mistake can discredit a forestry program for many years to come.

5. Make sure the villagers contribute something to the program. Too often programs assume that villagers can't or won't contribute cash or kind to community projects. Time and again, it has been shown that when people invest something in an extension effort, there is better chance of lasting success than if everything is provided free. This often means that inputs may be heavily subsidized or a truck hired at a fraction of the real cost. But the people can feel that they have a share in the program and are not receiving a handout. It is also a test of the need for the program and the value which people attach to it if they are willing to spend something on it. If there is reluctance to contribute, it may mean that villagers do not see a future return. Or it may be that the program is too ambitious and the risks are seen as too great.

In any case, the extension workers should be aware of possible difficulties when people do not commit their own resources to a program, however small that contribution might be. This may go counter to the policy of a government which has decided that services to the people must be provided without cost. Stress would then be placed on in-kind contribution such as added labor.

6. The program must match the people's felt needs, interests, and capacity to begin, carry out, and continue with it. The community forestry program must be tuned to the felt needs of the people. Defining these felt needs in realistic terms may have taken the community forestry extension staff some time. But the result is a program that reflects villagers' views rather than opinions imposed from the outside. In short, the program begins where the people are. This will vary from area to area, so that a universal blueprint cannot be laid down from the national headquarters.

People will require information, knowledge, and leadership to being community forestry activities, even at a modest level. The people's capacity to conduct a growing program will need expanding as new stages are reached. The work of the extension worker is to provide such assistance when the timing is right: a training course, visit to another village, technical information, and encouragement when interest flags. People will build on their past experience and often can identify what they require to move forward.

A measure of the program's long run success is how well the villagers can continue the program with less and less direct support of the community forestry staff. Often the mismatch between the villagers' goals and the program organizers' goals is too great for the program to be self-sustaining. This mismatch leads to disappointment and misunderstandings. The tendency is then to blame persons rather than the circumstances which led to differences between what the villagers felt they needed (or didn't need) and what the community forestry program implementors felt should be done. A careful beginning may avoid this later mismatch and promote better capacity to continue programs.

7. Money is less a constraint in carrying out village extension programs than the ability to use existing resources. The greatest asset a community forestry extension officer has is knowledge and information. This is usually the villagers' greatest asset as well, only their knowledge and information is different--often more adapted to solving local problems they encounter every day. Drawing out the existing resources of a village can be one of the major

contributions made by the outside extension worker. Who can do what? Who has what tools? Who knows where to get such-and-such materials? Who is going to the town regularly? Whose relative is working in so-and-so company, office or shop?

Putting together the available knowledge, information, and resources into a coherent plan can be an exciting discovery for the community--like taking an inventory of a storehouse. Then applying those resources for the community's development becomes a large step forward in self-reliance. This makes what few funds may be available for a program go much further--and avoids the "money going into an endless pit" syndrome of many projects.

8. A successful extension program inevitably has extension workers who are well motivated, well trained, respect villagers, and enjoy rural life. This is partly the result of good selection procedures, careful initial and periodic training, enthusiastic leadership, good communication with headquarters, reasonable terms of service, and realistic evaluation procedures.

9. Participation by the people is a necessity. The quality of the participation is especially critical to how the program will survive over time. Participation can be by a small group of villagers who represent only themselves as a group of opportunists. Or participation can be truly broad-based, with cooperation from whomever is asked. It is not always possible for extension workers to know the kind and quality of participation at the beginning, or even the middle, of a program. Monitoring and evaluation techniques can be useful in pinpointing participatory trends.

10. While programs in community forestry should be village-oriented and village-centered, the quality of support given to field staff by the central organization is critical to overall conduct of the program. This support includes field staff participation in suggesting improvements and giving ideas for new programs. Refresher training, field visits by supervisors, incentives for excellence, and amenities such as transport and housing assistance all mean a great deal to those living in isolated conditions. Meaningless paperwork should be abandoned, but periodic, good quality, analytical reports encouraged to provide a sense of profesionalism. Transfers should be especially scrutinized as these often have a very disruptive effect on extension programs.

11. If outside funds are provided to support village-level community forestry, those funds should not substitute for money given by the central government or the villagers. Otherwise, when the inevitable end to the outside money comes, the program will end with it. Outside funds can be used for hard-to-get items which indirectly contribute to the program, such as a motorcycle for the extension worker. But the upkeep and running costs should remain a locally funded item. Study tours or outside training experts could be funded by the external agency. This funding procedure really should be explained carefully to villagers as well as all levels of staff.

12. Every possible effort should be made to develop a unified program with agriculture, livestock, health, community development, and other sectoral groups found at the village level. The villagers do not compartmentalize their daily tasks as central governments do into different ministries. Villagers may tolerate conflicting programs, but their tendency is to go about their own business as best they can. They risk being considered "uncooperative", but can only appease so many government officials wanting different things of them.

Forestry extension workers can play a key liaison role in many districts because of the diverse and adaptive nature of forestry programs.

13. Women, youth, and the very poor require special efforts to involve them either separately or in the main stream of community forestry programs, depending upon cultural factors. In many societies, it is never easy to include women and youth into programs as a whole. They themselves choose to not be with the men, or it is made quite clear by the men that the extension worker should have nothing to do with anyone except the men. This can be overcome by the unusual procedure of actively recruiting and training women community forestry officers and workers. This is an established part of community development and health education programs, and it may be that some of these ladies could be shifted to community forestry programs to start with, while training of women foresters begins.

If the youth and the very poor are excluded, it is quite possible that the necessary community agreements about production and protection of tree will be ignored by these groups. This is the negative side. The positive side is that the youth and the very poor have the most to gain from a successful community forestry program--trees in their future maturity in the case of youth, and greater access to less expensive wood products in the case of the very poor.

14. Where governments can not begin FLCD activities, community forestry programs should be established through respected non-governmental organizations (NGOs) which have the trust of the villagers. In many places imaginative and effective rural development programs have been established and run by NGOs. This is because they have been able to be selective, decentralize, make long term commitments, and attract highly motivated staff. Their commitment to the rural poor has provided a credibility which governments cannot always match. Note: Encouragement of local community forestry groups is a powerful way to see that all of the above guidelines are followed.

THINKING ABOUT A COMMUNICATIONS TEXTBOOK

By

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Paper to be presented at the National Council for Agricultural Education, Tengeru; February 24 - 26, 1982.

THINKING ABOUT A COMMUNICATIONS TEXTBOOK

I hesitate to call this an academic paper. It is more accurately a few pages shared with colleagues about the need for a textbook dealing with communications in development--with an emphasis on agriculture and rural life as found in Eastern Africa and especially Tanzania. As the idea is in the tentative stages, I hope you will forgive the roughness of the thinking and yet be critical of the idea itself.

The problem. "Communication" is included in many of the curricula of our institutions. In particular, the use of audio-visual aids for extension officers, teachers, and training personnel is a standard course. I teach a course entitled "Agricultural Communications" to the second year agricultural students at Morogoro. It is only 18 contact hours and I'm not really sure if the students get much from the course. It may be that the course description is too wide: from communication theory to public speaking, with intermediate points such as agricultural journalism and mass media along the way.

The frustration of teaching this course has led me to think of the wider need for something beyond my lectures. I have found very few items suitable for handing out; they are often more detailed than necessary or too simplistic for what I am trying to do.

From a few professional colleagues in several parts of the world, I have recently obtained the names of possible textbooks. Unfortunately, as of this writing I have not been able to see the books themselves, nor have I seen any reviews which would indicate their content. So this paper is intended to outline what should be included in any existing text, or one yet to be written to fill the void.

I very much sympathize with those who are non-specialists in communication topics but who are expected to teach communications courses. A good quality textbook, perhaps with a teacher's guide, would make the task less burdensome. Such a textbook would also provide a useful resource in refresher courses which the Continuing Education Centre at Morogoro hopes to mount in the area of communication for development. I think that with a comprehensive text available, the important area of communication for development would have more prominence in our training institutions.

Possible topics. The content of a text in development communications would have to be wide. Communication topics overlap many areas of study. Psychology contributes perception, learning, and attitude change. Sociology discusses group effects and the larger dimensions of how information flows (or doesn't flow). Anthropology provides background on how belief structures and cultural patterns can affect acceptance of new ideas which come from a given source. History reminds us that past events have lessons to teach for the present and future. Education contributes a large element of application of communication principles in formal and non-formal settings. Systems analysis, management, social psychology, engineering, journalism photography, art, and another dozen specialities are at one time or another included in the communication process. And that does not even touch on the content of the communication: crop production, pest control, irrigation, livestock production, fisheries, tree planting, nutrition, etc.

Because of this wide ranging nature of communication--really too broad to have any real value until narrowed to workable limits for a given situation--a number of sub-divisions have emerged over the past twenty years. A few of these include:

mass communication	participatory communication
applied communication	interpersonal communication
development communication	organizational communication
audiovisual communication	visual communication
instructional communication	agricultural communication
educational communication	appropriate communication

All of this is rather like the blind men who were asked to describe an elephant--each basing his own description of the whole animal on the part of the elephant he happened to be closest to in blissful ignorance of the rest. You can imagine the arguments which arise when a group of people calling themselves communication specialists get together to describe the elephant called communication. But I believe it is possible to define the boundaries of a communication textbook to be used in training agricultural officers, extension agents, rural development officers, and others. There are some topics which are generally agreed to as necessary theory, application, practicality, and reference for such personnel. There is disagreement about particular approaches to communication: roughly divided between those supporting some form of conventional top-down flow of information versus the more participatory, grass roots approach. One's philosophical outlook is a strong determinant of which side is selected in this complicated question. I think any textbook should present the arguments on both sides without necessarily advocating a single approach.

The kind of textbook I see as useful would focus on development communication; that is, the use of communication methods and technology for improving the quality of life and those living in comparative poverty. Emphasis would be on rural life and key rural issues of agriculture, livestock, forestry, nutrition, and health. The major topics would likely include:

*The role of communication in development

*Communication theory, vocabulary, systems and processes

*Historical background of applied communication

*Communication at the individual level: perception, attitudes, action

*Group issues which affect communication efforts

*Mass communication in development

*Communication tools: from individual to nation

*Analysis of communication problems

*Strategies and implementation of solutions to communication problems

*Management of communication efforts: suing scarce resources wisely

*Producing communications and audiovisual materials

*Using audiovisual technology

*Personal and professional communication skills: Publicity and report writing, public speaking, interpersonal communication

*Evaluation of communication efforts

*Looking to the future in development communication

*Reference section: specific how-to topics (poster making, making an extension leaflet, conducting a radio interview), sources of materials, etc.

*Bibliography, glossary, index.

Format and style. This tentative listing of topics is put forward without an exhaustive search of the literature--particularly of the past several years. But the list is sufficiently general to include any new themes which may be arising in various parts of the world where people are exploring new ideas. The book should blend the familiar textbook formality with parts set aside for case studies, "cook book" type sequences for the nuts and bolts of audiovisual production, and the flexibility to omit chapters or topics without too greatly destroying the flow and continuity of the book.

The dilemma of acquiring such a textbook. I'm hoping that this mythical text does exist somewhere at this time. Perhaps it is being written. If in the next few months my exploration does not turn up something resembling the above animal, I will consider how to acquire one. This may mean writing a textbook, serving as editor and having a number of people collaborate on specially written chapters, or trying to find existing literature which could be compiled into a single collection. There are merits and demerits to each of these approaches.

My primary purpose of putting forward the concept of a textbook at this meeting is to get the opinions, suggestions, and criticism of colleagues who require improved teaching materials. I would hope at a later meeting to report progress in discovering a suitable text, finding an author working on one, or personally trying to bring such a text to light. This latter two, of course, assume that a publisher can be found who is not only interested but financially willing to publish the manuscript.

When I get too bogged down in the theory and practice of the topics noted above, I find refreshment in knowing how well people receive the more visible audible means of communication--the crowds who show up at cinema performances, the eagerness expressed in receiving a newspaper, the great demand for radios. These more glamorous media reflect people's basic interest in know about their world. I would hope we could do a better job in using the interest for development purposes.

ANNEX L

PROJECT PHOTOGRAPHS

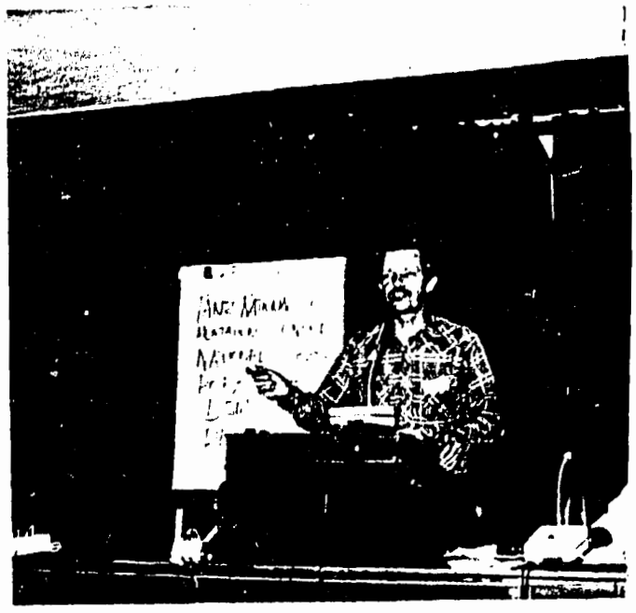
Staff at DAEE and CCEA, September, 1983.

A. N. Madalla (right) with Mzee S. Amandi, Audiovisual Technician. Mr. Madalla spent two years at USU and obtained an Ed. Specialist degree in Instructional Technology. These men were inspecting the uncompleted buildings prior to Mr. Madalla's departure in 1980.

A frequent Morogoro Visitor was USAID Project Officer, Ron Harvey. He is shown (right rear) with his family--Eric, Rhonda (held by Project member Jim Brain) and Vivian. Peggy Giltrow is standing in front of Ron Harvey.

Jim Brain presented his Professorial Inaugural Lecture in April, 1981. Jon Moris was in Tanzania at the occasion (far right), seated next to Dean Lwoga.

One of the first CCEA functions was sponsorship with the Tanzania Agricultural Economists Association of the Farming Systems Research Conference, April, 1981, Arusha International Conference Centre. Courtney Brewer, Ron Harvey (USAID), David Giltrow and C. Lijongwa (DAEE Staff member) are shown (from left to right) listening to a presentation.

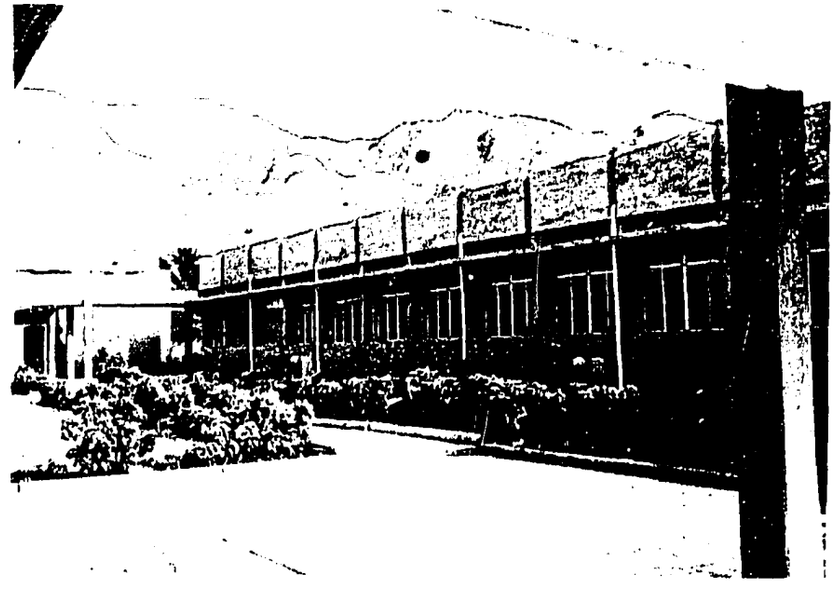


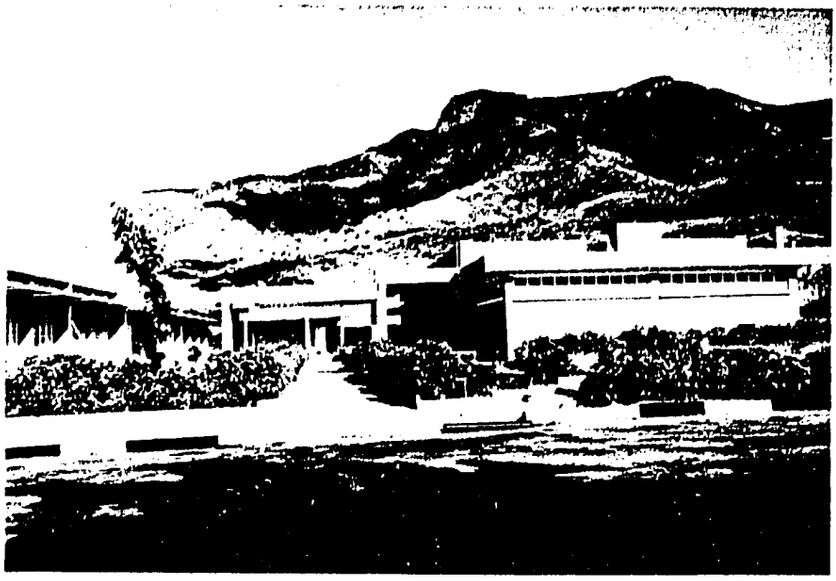
Jon Moris presented a paper at the Farming Systems Research Meeting while visiting Tanzania as USU campus Coordinator for the Project.

Courtney Brewer (left) is shown with Dr. P. Anadajayaskeram, organizer of the ISR meeting.

DAEE Office block
under construction
(1979 - 1982)

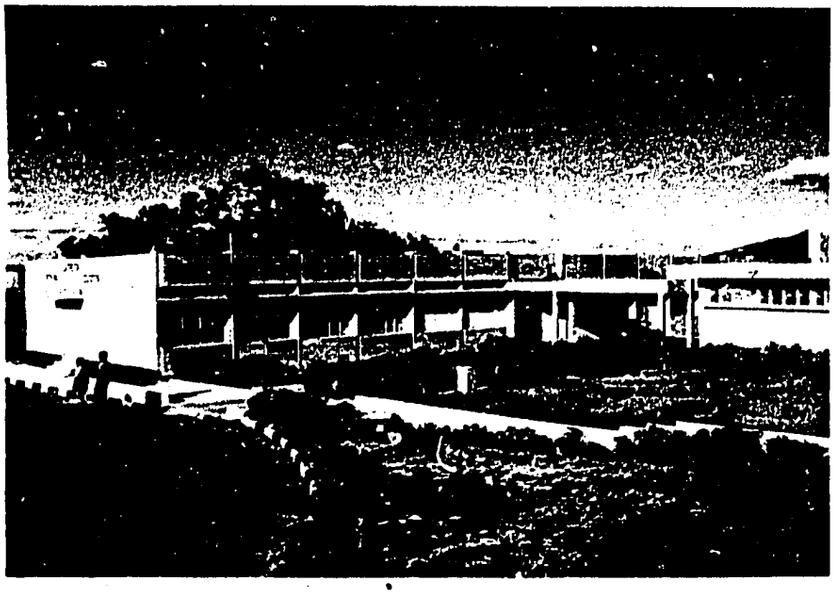
DAEE Office block.
Uluguru Mountain Range
in background. A
second story is to be
added in Phase II,
adding classrooms,
meeting rooms and
offices.





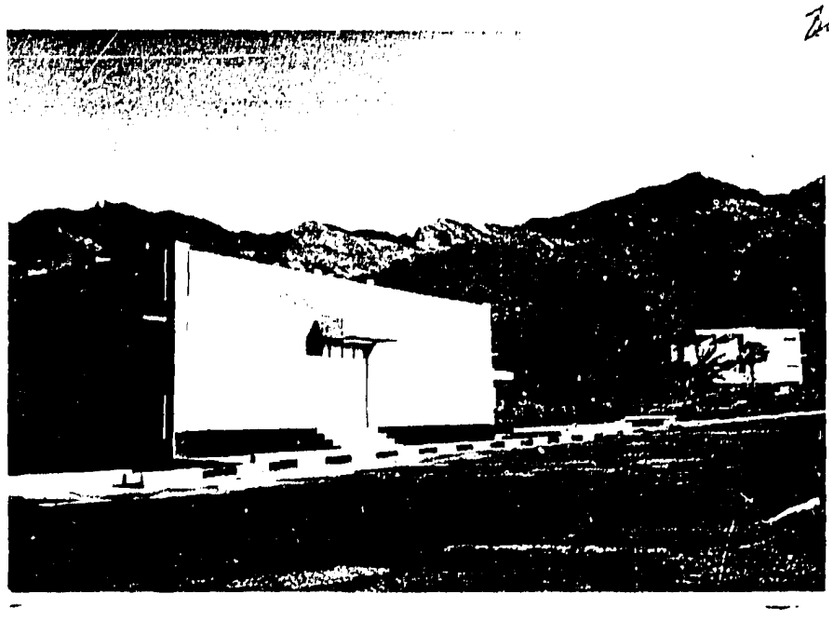
CCEA/DAEE
Complex: Main entrance

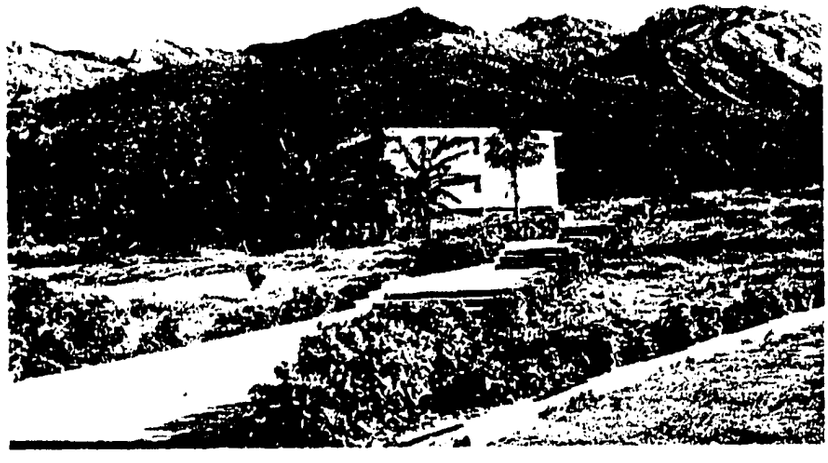
Main hall, CCEA.
Total capacity 80
with central core for
tables.



CCEA Building with
AV Unit on left side.

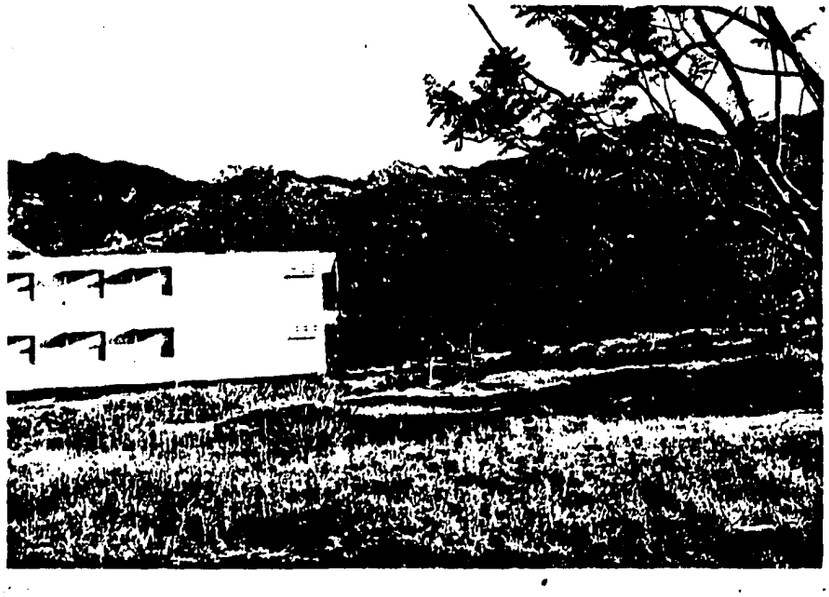
CCEA with Hostel
in the background.





CCEA Hostel. Holds 24 short-term participants (in Phase II, an additional 40 participants will be accommodated in a separate block to the right, along with dining, kitchen, and laundry facilities which are not presently available).

Hostel.



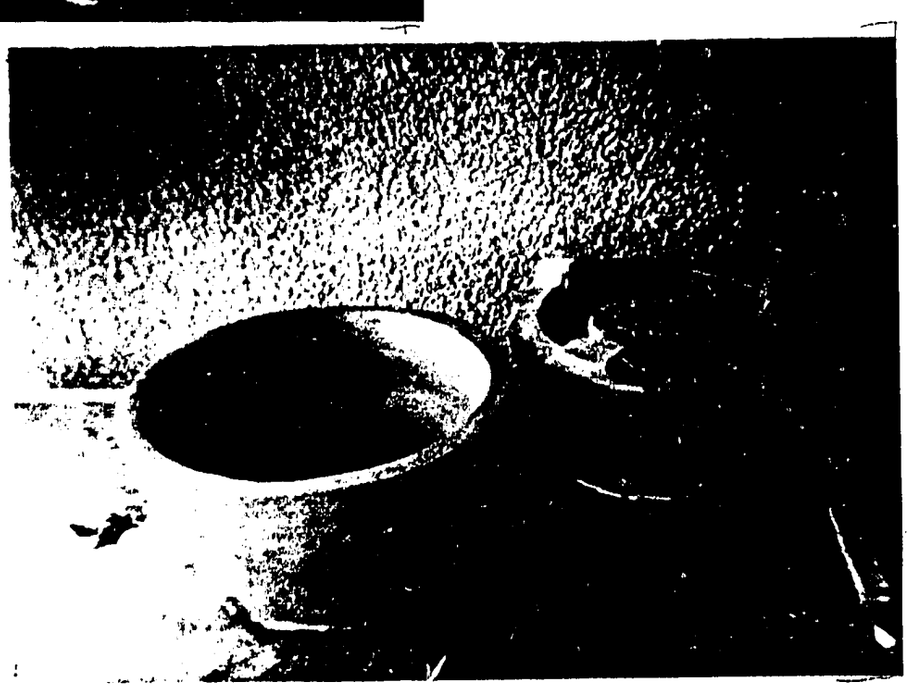
Informa discussion about extension methodology as part of Coconut Extension Course sponsored by CCEA by National Coconut Development Program (NCDP). Five two-week courses for extension workers were held at the CCEA in 1983.

Project-supplied Landrover for DAEE use. One of four vehicles supplied by USAID.

Rehearsing for Field Day for Farmers.

Bart Sensenig discussing extension methods with NCDP participants.

Trina Laya-Sensenig and daughter, Lorraine, working on her stove research.

Example of Tungku Lowan Stove (Indonesia)

Example of Pangawe ceramic stove. (Tanzania)