South Pacific Region Agricultural Development

AID Project: ASIA-C-1447

IN-HOUSE PROGRESS REPORT

Prepared For Mid-Term External Evaluation Team

By
University of Hawaii
Cornell University

December 1983

TABLE OF CONTENTS

IN-HOUSE PROGRESS REPORT

SECTION I. INTRODUCTION: HISTORY AND BASIC ASSUMPTIONS

The South Pacific Region Agricultural Development Project was developed in response to the expressed desires of the governments of the South Pacific Region. The process which led to the design and implementation of the Project included a USAID canvassing of governmental priorities[1], the recommendations of an expert team which visited the region from the University of Hawaii[2], a survey of baseline needs in agriculture research, extension and education produced by the University of Hawaii, and specific proposals developed by American universities in response to a request-for-interest statement from USAID. The process began in 1977 and culminated in the grant/contract Project in 1980.

The review team is referred to the Project Paper for a full description of the background steps and assumptions that underlay the development of this technical assistance project. That document outlines the philosophy as well as the implementation strategy and available resources. In this brief introduction, we will highlight a chronology of the Project for your reference, and the assumptions which appear most basic to the Project.

The "In-House Progress Report" has been prepared by the University of Hawaii and Cornell. Drafts were distributed for review to all Project staff at UH, Cornell and the University of the South Pacific (USP). The USP will provide another, companion, report for the external review team. The report covers the period from January 1981 to November 1983.

This report serves two purposes. First, it provides an opportunity to review and assess progress on the Project to date, as well as the basic assumptions and design. We have drawn conclusions from the process which are leading to modifications in the original design, and specific proposals to USAID for implementation within the first five years of the Project. Second, it provides you, as an external review team, with our analysis of the Project. It summarizes major activities, assumptions, successes, problems, and the criteria that we feel are important in determining the effectiveness of this technical assistance effort.

This report cannot take the place of the various expert reports which have served as input to the Project, and we encourage you to read and absorb their conclusions. The project has some specific characteristics which make it complex. The keywords we use to identify these characteristics are: regional, multi-national, institution-building, tropical, multi-environmental, multi-disciplinary, and multi-institutional.

---

[1] Imus and Gulick.
[2] Tom, Rotar, Bridges, O'Reilly.

The Project is intended to impact the agriculture of a region consisting of eleven independent island nations. Its impact will be achieved through the development of a regional, institutional resource. That institution must develop the capacity to respond to agricultural needs in tropical environments which, although similar, differ from one another in both gross and subtle characteristics. For example, major differences between agriculture on atolls, and volcanic islands, and more subtle differences among ecosystems, crop nutrient requirements and pests, call for distinct and broad-range program responses.

Each of the constituents of the "region" served by the Project -- each member of the USP -- is an independent national entity. Each has a different history of social, cultural and economic development. Customs vary with respect to agricultural production; there is important variation in the preferences for crops and cultivars within crops. Regulations vary with respect to import/export of agricultural commodities, and the transshipment of seeds, seedlings and other agricultural goods. Quarantine regulations are strict in order to protect fragile island ecosystems. Therefore, transfer of technologies involving plants or soil is restricted and requires a careful strategy.

Agriculture can be improved only through the application of knowledge and training from a variety of disciplines. Therefore, the institution must develop its capacity for teaching, research, and extension in many subject areas. The Project involves faculties from at least five disciplines at any one time, and was designed to bring together the expertise from seven or eight, depending upon the definition of "discipline." Project implementation must be coordinated among three universities, at four sites more than 8,000 miles apart.

Finally, the region served by the Project involves a geographic area which is 3,500 miles across from east to west, and 2,000 miles from north to south. The total population of the region is approximately 1.3 million, ranging from the largest country (Fiji, with 610,000) to the smallest (Tokelau, with 1,600). Transportation and communication networks are often as fragile as the ecosystems and economies they connect.

A. Assumptions

To approach the needs of this region, USAID and the university collaborators developed the Project on the basis of about a dozen key assumptions. Each of these is addressed in the Project paper at some length. They are outlined here to crystallize the major themes.

1. Improved agriculture was a major need in the Pacific, and these improvements would contribute to economic development.

2. In agriculture, the greatest needs were in the development of local capacity for research, extension and education in agriculture (REE).

3. These needs also involved the training of local Pacific Islanders so that USAID would contribute to long-term regional capacity in agriculture.

4. USAID could most effectively impact agriculture in the region through a regional institution, rather than through independent, bilateral arrangements.

5. The University of the South Pacific Agriculture Campus at Alafua was an appropriate base for a major regional institution.

6. The Project should involve collaboration between the USP and American Land-Grant Universities.

7. The Campus at Alafua should support all three types of programs in agriculture: research, extension and education.

8. The Campus at Alafua needed the structure of both a School and an Institute, consistent with the general pattern of arrangements within the USP.

9. The process of developing this institution to meet regional needs in agriculture would require approximately 15 years, and USAID could make an initial commitment of 5 years.

10. The most important subject areas for development by USAID were: Agriculture Education, Agriculture Extension, Crop Production/Soils, Agricultural Engineering, and Nutrition/Food Technology.

11. These subject areas and the campus programs would need the support of a library and information resource and an understanding of the human resources in the region.

These assumptions appear not only in the narrative, but also in the LogFrame for the Project Paper, Annex B. The intent is stated quite clearly as both the Sector Goal and Project Purpose:

> Program or Sector Goal:
>
> The broader objective to which this Project contributes:
> **Promote agricultural productivity and further socioeconomic development for the rural peoples of the South Pacific Region.
>
> Project Purpose:
>
> **Strengthen capacity and resources of the University of the South Pacific in agricultural research, education and extension (REE)...

B. Design

To accomplish its goals, the Project was designed to contribute in teaching, research, and extension, using the following types of inputs: long- and short-term technical assistance faculty from the American universities; participant training at the graduate degree level for regional professionals at the American universities; the purchase of equipment and construction of faculty housing; the provision of travel funds for the technical assistance staff and for regional workshops to be held both at the USP campus and at sites within the region.

The original Project design approached the institution-building objective by providing inputs to the School and IRETA in primary agricultural subject areas and the library (assumptions 10 and 11). The design agreed by USAID, USP and the contractors provided neither a "team leader" nor technical assistance in overall program planning. The weakness of this design has since been recognized: In May and November 1983 discussion focused on the establishment of an appropriate technical assistance assignment to fill this role. An assignment is now being proposed which would provide two years of a substantive TA assignment in program management (75%) as well as the coordinative team leader function (25%). (See Quarterly Reports)

The flowchart on page 33 of the Project Paper summarizes these inputs over time. The budget layout on page 32 indicates the allocation of resources between the grant and contract portions of the Project. This administrative arrangement is explained more fully in Section II of this report — Project Management. Only the subtotal column of the financial plan on page 31 should be used by the review team. The flow of funds indicated there served an illustrative purpose, and the actual flow of funding and requests followed the implementation of specific activities.

A narrative of the Project inputs and expected outcomes is provided on page 8-15 of the Project Paper. Through amendments to the university contracts, some of the outputs have been adjusted, in order to accommodate a reduction in 1982 of the allocation of funds to the Project (i.e., the inputs). An attachment to this document provides a current version of the Scope of Work of the university contract, and the inputs and outcomes associated with that scope of work.

It is expected that the full level of authorized funding will become available to the Project in 1984. Proposals for expansion of the Scope of Work to the original level are attached to this report as well. Although unwelcome at the time (February 1982), the temporary dip in projected allocations provided an opportunity to reassess the Project priorities and design, and has allowed for the implementation of improvements.

C. Chronology

Provided below in the form of an annotated time-line, this chronology provides a reference point for key events in the development and implementation of the Project.

Spring 1977	USAID Imus and Gulick compile list of development projects reflecting desires of the governments
Spring 1978	USAID funds expert team from University of Hawaii to develop recommendations for long-range institutional development program for USP (Tom, Rotar, Bridges, O'Reilly)
Spring 1979/Fall 1979	USAID revises recommendations and requests statements of qualifications and interests from American universities

April 1980	University of Hawaii selected to work on Project Paper and Baseline Survey
August 1980	First draft of Survey circulated and Project Paper Finalized
January 1981	USAID Contract with University of Hawaii signed; Cornell Subcontract approved
February 1981	First TA Faculty takes assignment in Crop Production/Soils--11 months (R. Chase)
May 1981	Semi-Annual Meeting in Hawaii
July 1981	Second TA Faculty takes assignment in Ag Engineering--6 months (W. Steinke)
	General Strike and Elections in Western Samoa
	Construction on Houses begun
September 1981	Regional Directors of Agriculture Meeting - Alafua
November/December 1981	Problems arise with official status of Americans in Western Samoa
January 1982	Change in USP Administration: T. Uili named as Dean and Director of IRETA
January 1982	US Government negotiates official status for TA staff
Jan. 29-Feb. 4, 1982	Semi-Annual Project Meeting in Suva; Project revised to accommodate expectation of reduced allocations. Reduction: $1 million.
February 1982	Three additional TA faculty arrive at Alafua: Ag Education - 24-month (H. Cushman); Crop Production - 24-month (J. Wilson); Ag Communication - 5-month (R. Colle).
April 1982	Change in USP Admin: Vice-Chancellor J. Maraj departs; F. Brosnahan named Acting V-C
May 1982	Housing completed
June 1982	TA assignment commences in Ag Extension - 24-month (J. Gould)
July 1982	Dean T. Uili visits UH for discussions. Cornell also participates.
September 1982	Regional Directors of Agriculture Meeting; FAO/UNDP Meeting; Semi-annual Project meeting at Alafua

November 1982	Change in administration at Alafua: F. Wendt appointed as Dean. L. Fernando named as Director of IRETA
November 1982	Seventh TA faculty takes assignment in Engineering—14 months (J. Dunn)
January 1983	Change in USP administration: F. Brosnahan named Vice-Chancellor; N. Poulton as Director of Planning and Development
May 1983	Semi-annual Project Meeting, at Alafua
August 1983	W. Samoa Government announces intention to "repossess" Alafua Campus (see attached article)
August 1983	USAID invites Project expansion to full authorization
November 1983	Semi-annual Project Meeting at Alafua

As can be seen from the chronology, the Project has experienced some of the ups and downs that are common to technical assistance efforts; many due to factors which are beyond the control of Project leaders and collaborators. A general election and general strike in Western Samoa impeded the ability of the USP to let contracts for faculty housing and to complete these facilities. Since the University of the South Pacific was unable to deal with the status of the expatriate staff in Western Samoa, the U.S. Government was required to enter into a negotiation with the Government in late 1981 to settle these matters. This delayed the start of three technical assistance assignments by almost two months. Thus, although the implementation contract was signed in January of 1981, a variety of factors prevented full implentation, i.e., relocation of a full complement of TA staff, until February of 1982. As a result, project participants consider 1981 a year of laying groundwork in both administrative, physical and some subject matter areas.

As Project expenditures lagged with the implementation, it has been possible to extend the Project, without raising the authorization level, to an expected termination of the first phase in 1986, rather than 1985, as indicated on the flowchart on page 33 of the Project Paper. Thus, in March of 1984, the Project will be 26 months into a five-year effort, just about half-way.

D. Structure of the Report

The narrative which follows covers accomplishments from January 1981 to November 1983. This report is structured to parallel the design and function of the Project, and is divided into four sections:

I. Introduction: History and Basic Assumptions
II. Project Management
III. Project Components
IV. Institutional Development

Section II describes the structure of the Project and the mechanisms for management. It also outlines the flows of equipment and funds.

In Section III, progress in each of the individual subject area components is described. The narratives discuss: objectives for that subject area; the criteria for evaluating progress; accomplishments and constraints; future emphasis--both immediate and long-term; and other documentation which you may wish to review in evaluating that subject area.

Section IV deals with the overall objectives of institutional development. Like Section III, it discusses objectives, criteria, accomplishments and constraints, future emphases, and other documents.

SECTION II. PROJECT MANAGEMENT

The USAID Grant 492-1710 is administered in two major sections. A portion of the grant funds is retained by the University of the South Pacific in order to administer several aspects of the Project; another portion of the grant funds has been used to contract with two American Universities to provide technical assistance to the University of the South Pacific to develop as a regional agriculture resource. Thus, there is a "grant" and a "contract" which constitute the Project.

The grant funds, administered by the USP, cover training--both scholarships to the University and regional workshops; outreach agents--the staff of the Agricultural Liaison Officer network; Project staff travel in the region; and the construction funds for the six faculty houses.

The contract, AID-ASIA-C-1447, brings the University of Hawaii, as lead institution, into a technical assistance relationship with the University of the South Pacific. Contract responsibilities cover six subject areas and include faculty technical assistance, equipment, graduate degree training, the establishment of a Project Management Office, and evaluation activities. The Cornell subcontract brings Cornell into the relationship through responsibility for two of these subject areas. That subcontract includes the full range of activity related to the subject areas. The contract and the associated current budget are attached.

The contract scope of work and budget, as established in the Project Paper, were revised substantially in February 1982. In June 1982 the original annual contract cycle was converted to one with an estimated completion date of September 30, 1986. The life-of-project budget (currently $3.5M) now receives periodic allocations (1-2 per year) through the USAID regional office in Fiji and a Federal Reserve Letter of Credit. The life-of-project budget (as refined from time to time), is the basis for requests for funds from USAID. Since June 1982 these USAID allocations have been more than adequate to meet program commitments.

Except where indicated, the following narrative refers to management of the contract portion of the SPRAD Project.

A. Objectives of Project Management

The purpose of defining a management capability for the Project is to assure that the Project functions in an effective manner in accomplishing its goals. Project Management serves to provide:

1. Overall guidance for the development, implementation and evaluation of the contract scope of work and budget, as part of the larger SPRAD Project. This involves: a) assessing program and individual needs as they evolve; b) setting priorities for activities; c) identifying and providing institutional incentives and support for activities; and d) interpreting the SPRAD Project Paper and modifying it as necessary, based on Project reviews.

2. Identification, recruitment, orientation and evaluation of technical assistance (TA) faculty. For the faculty, opportunities for professional development.

3. Support services for the faculty on the project in the field and for the technical assistance programs they are conducting. Personnel support includes: a) financial arrangements; b) family matters; c) relocation; and d) assistance with a variety of administrative procedures. Program support includes: a) assistance with program planning, development, implementation and evaluation; b) procurement and delivery of authorized equipment; and c) assistance in resolving problems which arise with program implementation.

4. Guidance for the graduate participant trainees. Graduate degree programs are designed and augmented to prepare regional students for USP faculty responsibilities.

5. Maintain Project records and provide the programmatic and fiscal reports required by the sponsor and necessary for program management.

6. Problem-solving to resolve unanticipated difficulties occurring in program implementation, whether arising from internal management concerns or as a result of external factors.

B. Management Resources

The following offices and resource people carry administrative responsibility for the SPRAD Project (grant and contract).

USAID

USAID Washington D.C.:
Asia Bureau/A. Hankins (to Februry 1982)
Contract Management/P. Howley and W. Gohn (to July 1982)

Fiji Mission:
Regional Development Office/R. Craig (to February 1982)
W. Paupe (from July 1983)
M.A. Doyle (designated USAID Project Manager from February 1982)

Manila Regional Office:
Contract Officer/R. Potocki (to September 1983)
R. Doucette (from September 1983)
Controller/H. Collamer (from July 1982)
Legal Adviser/W. Pressley (July 1982-September 1983)

USP Suva

Vice-Chancellor's Office:
Vice-Chancellor/J. Maraj (to September 1981)
F. Brosnahan (Sept 1981-September 1983)
G. Caston (from October 1983)
Director of Planning and Development/R. Treyvaud (to July 1982)
N. Poulton (from January 1983)
Special Assistant to the V-C/M. Kite (to July 1982)

USP Alafua

Dean:
Dean/F. Wendt (January 1981 to January 1982; from January 1983)
T. Uili (January 1982 to January 1983)
Assistant Dean/D. Slade (from January 1983)

Director of IRETA:
Director/T. Uili (to November 1982)
L. Fernando (from January 1983)
Administrative Assistant/Alopati (from August 1981)

University of Hawaii

Principal Investigator (PI):
PI:K. Bridges (to May 1981)
N. Kefford and A. Demb (from May 1981)
Project Manager/L. Hamilton (from June 1981)
Administrative Assistant/M. Staff (from February 1982)
Fiscal Assistant/L. Kimura (July-December 1981)
C. Ikeda (from March 1982)
Senior Fellow/J. Wilson (from January 1982)

Cornell University

Principal Investigator:
PI:L. Zuidema
Accounts Coordinator/G. Saatman (from June 1982)

C. Criteria for Evaluating Management Capability

The following criteria are appropriate for evaluating the effectiveness of overall Project management (both grant and contract):

1. Are clear and attainable goals set? Do procedures exist for modifying them? Are plans formulated which guide activities toward specific program objectives? Is program implementation monitored and evaluated as a basis for refining plans?

2. Are appropriate financial and human resources obtained and put in place?

3. Is there adequate support for program implementation?

4. Are graduate programs underway? Are programs appropriate to future institutional and regional roles of graduates?

5. Is there coordination between program activities, and between program and administrative activities?

D. Accomplishments

Objective 1: Overall Guidance and Program

1. The Baseline Survey, which provides background information on the region and the status of research, extension and education, was completed and submitted in final form in May 1981.

2. A program needs assessment/planning trip was made to the region by department personnel from the University of Hawaii[3] and Cornell[4] in 1981. The purpose was to refine information for planning technical assistance programs in crop production, soils, agricultural engineering, nutrition/food technology, human resources and ag education.

3. Mechanisms have been developed and are functioning for reporting plans and progress at several levels in the Project:

--Technical assistance (TA) faculty "plans of work" are prepared annually, given to the Alafua Dean and university Principal Investigators (PIs) for approval;

--TA quarterly reports are submitted to the UH and Cornell;

--Contract quarterly reports are submitted to USAID/Fiji;

--Contract quarterly budget status reports are submitted to USAID/Fiji;

--Contract quarterly equipment budget status reports are submitted to USAID/Fiji;

--Status reports on equipment requested are submitted by the Project Manager to the TA faculty monthly.

--Status reports on the budget and expenditures are provided to the PIs monthly.

4. Mechanisms have been developed for evaluating progress and dealing with problems:

--Project leaders from USP, UH, Cornell, and USAID meet on a semi-annual basis with the TA faculty, at the Project site.

--Ad hoc consultation is provided both in person and through telephone, telex and satellite communication;

--Contract amendments have been prepared;

--This report serves as a major mid-term internal review for the Project.

---

[3] Rotar, Smith, Van Reen, Uehara and O'Reilly.
[4] Cushman and Drake.

5. Mechanisms have been created to respond to TA staff needs for program assistance:

--Faculty advisory/liaison committees have been set up at UH and Cornell;

--Opportunities have been provided for on-site and Hawaii-based consultation with home institution faculty. Dr. Bail (Head, Cornell Department of Education) travelled to Western Samoa in September 1982 and November 1983 to meet with Dr. Cushman. Dr. Wilson spent several days in consultation with Agronomy and Horticulture faculty at UH in March 1983.

--Other sources of funds have been tapped to augment programs.

6. Orderly changes have been incorporated into the grant and contract in response to reduced availability of funding in 1982.

7. Opportunities have been provided for consultation among Project leaders between semi-annual meetings. Dean Tau'ili'ili Uili visited the UH to meet with UH and Cornell PIs in July of 1982; Dean Wendt met with UH PIs in April of 1983.

Objective 2. Technical Assistance Staff

Three TA assignments have been completed in crop production, agricultural engineering and agriculture communication. The four planned TA assignments are now filled in agricultural engineering, crop production, agriculture education and agriculture extension. Two of the current TAs have accepted second long-term assignments in crop production and agriculture education. Upon completion of assigmments, TAs have been debriefed and their effectiveness evaluated with the PIs at UH and Cornell.

Pre-departure orientation programs of at least one week have been provided to TA staff and families for 5 of the 7 TAs. Two TA staff have requested and been granted travel support for professional development leave during their assignments.

Ad hoc arrangements to support TA programs have been implemented for agriculture education and the outreach network. Arrangements and financial support permitted two Cornell graduate students to undertake their fieldwork in Western Samoa in 1982 (L. Fuatai and C. Teoh). Consultation and training in the use of microcomputers was provided to USP and Project staff at Alafua and Suva in August 1983 (P.S. Leung).

Objective 3: Support Services

1. The Project Office was established at the University of Hawaii, staff hired and procedures implemented to effect a responsive relationship between TAs, the Project Manager and the university PIs.

2. Part-time staff positions supporting project administration were developed for Cornell and USP/Alafua and approval obtained from USAID to reallocate funds to these positions.

3. TA needs for several special arrangements have been met, including: emergency housing during TDY in Honolulu (early 1982); emergency medical travel; personal financial arrangements with banks in Honolulu and Western Samoa; education allowance and travel for dependents; emergency communication between TAs and the US mainland; and leave arrangements.

4. Individualized assistance is provided for program planning, development, implementation and evaluation through the mechanisms listed in Section D, Objective 1.

5. Equipment has been acquired and delivered to the Alafua Campus in support of TA programs ($126,000 to date). Six SPRAD faculty houses at Alafua have been completely furnished ($60,000).

6. Services of a transport coordinator agency have been acquired to negotiate arrangements for the movement of Project materials and personnel in the Pacific region. This includes freight consolidation and the services of a local freight agent in Western Samoa for customs clearance and delivery to campus.

7. Two local equipment purchase accounts have been set up on-site. Procedures which comply with USAID procurement regulations have been established for TA access.

8. USAID designated a USAID Project Manager in February 1982 (M.A. Doyle -- Fiji Mission) who is the primary contact and advisor for administrators of the Project.

9. Coordination of information and materials is provided on-site by the Senior Fellow (J. Wilson). The role of Senior Fellow serves in lieu of a "team leader" on the Project, carrying a portion of the coordinative responsibilities usually associated with that role (See Section IV, p. 62 for discussion).

10. Direct communication is maintained with the Project staff through the home office telex. Voice communication has been established on a bi-weekly basis through the satellite system since August 1983.

Objective 4: Graduate Training

One M.S. program in Agriculture Education was completed in August 1983, and that individual has returned to join the Alafua faculty. Four M.S. programs are in progress, as planned, in crop production, soils, agricultural engineering, and library science. A Ph.D. program is underway in agriculture extension. Standard academic programs have been augmented with field trips, conferences, workshops and specialized (non-credit) training and seminars.

Objective 5: Reporting

Programmatic and fiscal reports to USAID, as described on page 11, Objective 1, are provided to USAID on a regular and timely basis. Accounting systems for equipment procurement and transport have been developed by the Project Office. These include inventories of equipment, supplies, and library titles acquired and proposed.

Objective 6: Problem-Solving

1. Lines of authority and responsibility among the SPRAD institutional participants have been clarified, including: the U.S. government, USAID--Fiji and Washington, the Western Samoan Government, the USP--Alafua and Suva, the University of Hawaii and Cornell.

2. Several key aspects of the duty assignment site in Western Samoa were negotiated, and retroactive settlements obtained, including: tax status of TA staff in Western Samoa, post-differential, and R&R policies.

3. Procedures for resource allocation at Alafua have been clarified and now include an assessment of impacts on development projects. Two positions, Extension Lecturer and Information Officer, were reestablished subsequent to the SPRAD semi-annual meeting in May of 1983, when the impact of these USP financial decisions on the effectiveness of the Project were analyzed.

4. USP, USAID and the UH and Cornell were able to address an unanticipated problem with water supply in faculty housing by reallocating funds and negotiating the construction of supplementary water tanks.

E. Constraints

1. The primary constraint to efficient, effective progress involves the number of Project participants and their geographic dispersal. The complexity has several consequences: a) the need to develop inter-institutional arrangements; b) the need for multiple, reliable channels of communication; and c) dealing with technical assistance staff who are very isolated.

(a) The development of working arrangements and relationships among the several institutions involved in implementing the Project requires time and attention. Institutional policies and procedures differ and the level of communication required to take decisions increases exponentially with the number of individuals involved. The need for consultation among three universities, operating in four sites, almost 8,000 miles apart, has resulted in a noticeable slowing of response time in many instances.

(b) The coordinated flow of information is particularly difficult. Mail service transit time is a significant factor: between Honolulu and the U.S. east coast (5 days), Fiji (7 days), Manila (10 days) and Western Samoa (15 days). Telephone communication is limited by date and time zone variations (6 hours to the U.S. east coast, one day and 2 hours to Fiji, one day and 5 hours to Manila, and 1 hour to Western Samoa). International connections are poor in quality and unreliable; telephones in Western Samoa are scarce and often, not private.

Periodic voice communication is now possible via satellite. This has involved a patch between the USPNET and PEACESAT. Protocol and licensing procedures delayed implementation of this system for almost 2 years. The Project Office telex machine is used extensively and is the most reliable communication link with USAID/Fiji, USP and the Project TAs in Western Samoa.

The complexity of sharing information in a coordinated manner has required specific attention to reduce information lags among participants. However, this complexity and difficulty is a corollary of the number of actors and the distance between them and will continue to require management attention.

(c) The isolation of the TA staff hinders their ability to interact with other professionals, to locate resource persons within easy reach, and to obtain necessary materials. Transport and communication within the region are slow and unreliable. Limited airline service means that travel in the region for workshops or networking is time-consuming and inefficient. Equipment, parts and supplies are often unavailable locally. The logistical problems of air and surface shipment greatly delay the delivery of Project equipment to Alafua. These factors combine to hamper TA progress in implementing programs.

2. Another constraint has been a lack of policy information in a number of areas relating to USAID. Until 1982, there was no USAID Project Manager designated and therefore, no primary contact for problem-solving. Policy matters relating to duty post (tax status, R&R, post-differential) remained unclear until August 1983, taking administrative time and attention and undermining staff morale.

3. Frequent personnel changes in key Project leadership positions contributed to uncertainty about roles and responsibilities of Project administrators and the implementation of program activities. Communication for program planning was delayed; access to Project resources has been unclear in a few cases.

4. Technical assistance implementation was begun prior to the setting up of an operational support system. Two TA staff were sent into the field before the contract Project Manager was hired and the Project Office established (July 1981). This led to a very undesirable situation which can be described as management by crisis, until 1982. The impact of this difficult start-up period and the backlog of work which resulted, is still felt by the Project Office and the TAs in the field. For example, a much-needed Project handbook for TAs has not yet been generated.

F. Future Emphases for Contract Management

During the next two years, these areas will be focused on:

1. Improvement of support services to TAs, including specifically the generation of a policy handbook;

2. Development of mechanisms for improved overall Project coordination (grant and contract).

In planning for the long-term provision should be made for:

1. Adequate administrative staff assigned to the Project in each of the collaborating institutions;

2. Funds to support extensive group planning meetings to double-check assumptions, establish policies and decision-making mechanisms, and prepare operational support prior to implementation of programs.

SECTION III. PROJECT COMPONENTS

A. Agriculture Education

Staffing: February 1982 - January 1984 -- Harold R. Cushman
January 1984 - January 1986 -- Harold R. Cushman

Purpose: To establish a teacher education program at the USP School of Agriculture that will reinforce and expand capabilities of vocational agriculture in the public/private schools of the region.

OBJECTIVE 1. To develop curriculum for the Advanced Certificate in Teaching (Agriculture).

Criterion Questions:

1. Was the job of the teacher of agriculture in the South Pacific defined in such a way as to provide adequate guidance for curriculum development?

2. Were the findings of the task analysis of the job of the teacher of agriculture adequately incorporated in the outline of courses and course prescriptions.

3. To what extent have the arrangements made with the USP School of Education for their instructional input to the Advanced Certificate of Teaching in Agriculture (ACTA) program proven satisfactory?

Accomplishments and Constraints

A task analysis of the job of the teacher of agriculture in the South Pacific[1] was made in the belief that the most valid answers to the question "what should be learned" would result from a systematic analysis of competencies needed on the job. Heavy reliance was placed on the judgements of the job incumbents and their supervisors. Answers were sought to three main questions (1) What professional education (pedagogical) competencies are required by teachers on the job? (2) Where should potential (new) teachers learn to perform each task? and (3) To what performance level should needed competencies be developed? A detailed research report was published and distributed to Agricultural Education professionals in the Region.

The findings of the study were used to revise the outline of courses and course prescriptions for the teaching of both the first and second student intake, and as a basis for the section of the 1983 USP Calendar[2] dealing with the Advanced Certificate in Teaching Agriculture Program.

The School of Education (SOE) has from the beginning experienced difficulties in staffing their four course contribution to the ACTA Program at Alafua including EdD52 Classroom Learning, EdD54 Educational Evaluation, Ed151 Human Development and Ed153 Education and Society. In the case of the first student intake, efforts to recruit a full time staff member from outside the Region were unsuccessful. Arrangements were then made to have the regular teachers of these courses visit Alafua for approximately three weeks each on a rotating schedule. This arrangement, which involved the use of "extension mode

materials," proved by-and-large to be satisfactory although two students failed EdD45. In the case of the second student intake, the submission made by the SOE for funds to replace staff time spent on the ACTA Program in the above arrangement was declined by the Finance Committee. The SOE then cancelled plans for continuation of the first year scheme and funds were successfully sought through New Zealand aid to post short-term, well qualified, retired instructors at Alafua each semester. During the second year three students failed EdD52 and EdD54 and one failed Ed151 and Ed153. The plan for the third intake is to continue the 1983 scheme with designated tutors at Alafua under the direction of the New Zealand aid consultants who would also revamp and reorganize the courses with a view to changing them from ED to AG courses better adapted to the needs of agriculture teachers.

OBJECTIVE 2. To organize and conduct the Agricultural Education courses offered in the Program for the Advanced Certificate in Teaching Agriculture.

Criterion Questions

1. To what extent have the countries of the Region participated in the ACTA Program?

2. Have the right things been taught in the Agricultural Education courses?

3. What evidence is there that the Agricultural Education courses have been systematically planned and well taught?

Accomplishments and Constraints

Because the ACTA Program is a new development in the Region, special efforts have been required to solicit nominations from Governments and to recruit private students. The means used have included: preparation of a descriptive briefle , personalized letters to Permanent Secretaries for Education over the signature of the Dean, personal solicitation of nominees during visits to Regional countries, satellite sessions with USP Center Directors, advertisements in the press (Fiji, Tonga and Western Samoa) and radio announcements (Western Samoa). The result of these efforts appears in the tabulation below:

Country	First Intake (1982)	Second Intake (1983)
Cook Islands	-	1
Fiji	3	3
Niue	1	-
Solomon Islands	-	1
Tonga	2	1
Vanuatu	-	1
Western Samoa	2	2
Total	8	9

Four countries reported they had neither teachers of agriculture nor qualified candidates: Kiribati, Nauru, Tokelau and Tuvalu.

The first intake of students was made on 19 July 1982 and the two semesters of training were completed 8 April 1983. The second intake was made on 17 February 1983 placing the program on-track with the USP Calendar at Alafua. Each group received 90 hours of instruction in Ag045 Methods and Materials of Teaching Agriculture I during the first semester. Instruction was organized in two blocks during the second semester. During the 8-week on-campus block 80 hours of classes were offered in Ag045 Methods and Materials of Teaching Agriculture II and 36 hours in Ag048 Experience Programs in Agriculture. The content of all three courses[4] was derived directly from the task analysis described above. Detailed teaching plans and support materials were developed and mimeographed for each unit of instruction taught in the three on-campus courses. The magnitude of this task during both years of the program placed severe time constraints on other aspects of the program of work.

Ag047 Observation and Directed Student Teaching took place during the last seven-week off-campus block of the second semester. Supervision of this effort was carried out as a joint venture between the Senior Education Officer (Agriculture), supervising teachers and the Alafua teacher education staff in students' home countries. Coordination of these efforts and beginnings in the training of supervising teachers were effected during the Second Alafua Conference on Agricultural Education (see Objective 3). One all-day visit was made by Alafua staff to observe the teaching and other activities of each student teacher. Recommendations developed by the Conference group concerning 'rate of class take over' and 'experience to be obtained' were provided to in-country personnel. Suggestions for improvement were recorded in report letters to student teachers and copied in-country. Grades were cooperatively derived.

There were no failures by the first intake of students in Ag045(I), Ag045(II), Ag047 and Ag048. One student in the second intake failed both Ag045(I) and Ag045(II).

A student rating scale, "The Cornell Diagnostic Observation and Reporting System for Student Description of College Teaching," was administered to students in the ACTA Program following final examinations. The feedback received from this source and from unsolicited comments by students indicate that they have a very high and favorable opinion concerning:

1. The quality of instruction received,
2. Their progress in achieving the general objectives of the courses, and
3. The ACTA Program overall.

OBJECTIVE 3. To prepare instructional materials for use in vocational agriculture classes.

Criterion Questions

1. What progress has been made in assessing what kinds of instructional materials are most needed and how they can best be developed?

2. To what degree are initial efforts and plans for developing such materials well focused and appropriate?

Accomplishments and Constraints

Chye Hean-Teoh, doctoral candidate at Cornell, joined the Alafua Agricultural Education Staff from August 1982 to March 1983 as a research assistant. Following a thorough revision of his tentative research proposal "Instructional Materials for Vocational Agriculture in the South Pacific"[5] and the development of data collection instruments[6], he travelled extensively in the Region (and to the South Pacific Commission in Noumea) to collect data that would allow him to (1) assess available materials, (2) prioritize needed materials, (3) recommend desirable characteristics and (4) suggest a procedural model for developing needed materials. It appears that he will complete his dissertation in January 1984. A research report will be published at Alafua and distributed throughout the Region.

The first effort to produce materials was made with the first intake of ACTA students. Following training in simplified writing, improvement of interest level, determination of grade level and photography each student prepared an instructional material they believed would be useful to teachers in their respective countries, following Teoh's model. Five items from this exercise were published in Vol. I, No. 2, of South Pacific Ag Teacher[7] and distributed to Agricultural Education leaders and teachers of agriculture in the Region.

1. "Growing Pineapples in Fiji" by Gaya Prasad
2. "Raising Vegetable Seedlings Using a Seedbed" by Vueti Riumaiwai
3. "Tomato Production in Tonga" by Ifoni Ma'afu Lemani
4. "A Teacher's Guide to Vanilla Production" by Alamoti Tautakitaki
5. "Castration of Figs" by Falaniko Amosa Seo

Mr. John Bailey, Lecturer, Riverina Advanced College of Education, has accepted an offer from the Australian Universities International Development Program (AUIDP) to serve as a Consultant at Alafua during the period 12 January through 16 February 1984, with the following objectives:

1. To develop a detailed project proposal for establishing an Agricultural Curriculum Development Unit at Alafua to serve the secondary school agriculture programs of the Region.

2. To recommend necessary qualifications and conditions of service for professional personnel.

3. To develop a detailed plan for providing required office, storage and mailing facilities for the Agricultural Curriculum Development Unit.

OBJECTIVE 4. To offer in-service training for employed teachers of vocational agriculture.

Criterion Question

1. Have 10-20 vocational teachers per year participated in functional in-service training?

Accomplishments and Constraints

Achievement in this area has been quite modest during the first two years, primarily because of time constraints. The main in-service training activities carried out were:

1. The Fellow in Agricultural Education has served as Consultant to the Curriculum Writing Team in Tonga (7 teachers).

2. The Second Alafua Conference on Agricultural Education[8] was held at Alafua in January 1982 with 26 teachers and trainers from five countries participating.

3. The Fellow in Ag Education and the Peace Corps Volunteer keynoted and gave several presentations at the Solomon Island Agriculture Curriculum Writing Conference in Honiara June 20-24, 1983 (40 teachers).

4. Get-acquainted visits have been made with nearly all teachers of agriculture in Western Samoa.

OBJECTIVE 5. Implementation of staff development for sustaining the Agricultural Education activity at USP-SOA.

Criterion Question

1. How well is the training of a teacher educator in agriculture for Alafua progressing?

2. What human resources have been captured for sustaining the activity?

Accomplishments and Constraints

Lafita'i Iupati Fuata'i completed all requirements for the Master of Science Degree with a major in Agricultural and Occupational Education at Cornell University in late August 1983. He returned to Alafua where he has entered the intern stage of his training as a teacher educator. Mr. Fuata'i was able to return to Western Samoa to revise his thesis plan and collect data for his study, "Development of a Syllabus in Agriculture for the Junior High Schools of Western Samoa."[9] His progress to date in all aspects of his program is exemplar.

Michael Harrington, Peace Corps Volunteer joined the staff in late January 1983. Following a six-month orientation, he has developed an ambitious program of work and is working diligently.

It is anticipated, that by early 1984, the Agricultural Education staff at Alafua will consist of:

Dr. Felix Wendt, Dean and Head of School (Ph.D. Ag. Educ. Cornell 1975)
Dr. Harold R. Cushman, Chairman (January 1982 - January 1986)
Lafita'i Iupati Fuata'i (M.S. Ag. Edu Cornell 1984)
Michael Harrington, Peace Corps Volunteer (M.S., Southern Illinois University)
Consultant, Agricultural Curriculum Development, Australian Aid Project.
Associate Lecturer, Agricultural Curriculum Development, Australian Aid Project.

OBJECTIVE 6. Training of instructors to teach in-service technical staff of public/private (agricultural) agencies in the region.

Criterion Question

Have 20 instructors in technical areas of agriculture been given instruction in "how to teach"?

Accomplishments and Constraints

Very little has been done in this area due to lack of staff time in the face of other priorities. Such contributions to Workshop programs will become both more extensive and intensive as staff time permits. Presentations were made before two such groups during the period June 27 - July 8, 1983:

1. The In-Service Training of Technical Assistants in Crops and Livestock (20 persons).

2. The Pre-Service Training of Agriculture Liaison Officers (5 persons).

Agricultural Education and Agricultural Extension are in the process of assessing the interest of the Alafua teaching staff in the area of "improvement of instruction." Follow-up seminars will be offered as desired by our professional colleagues.

FUTURE EMPHASES

Next Two Years

1. Make arrangements for the Ministers/Directors of Education to act as an Advisory Committee to the ACTA Program, e.g. curriculum revision.

2. Attempt to stabilize arrangements for teaching of the four SOE courses, possibly as SOA offerings.

3. Revise the Agricultural Education courses to take advantage of experience from the first two years.

4. Hold anuual supervising teacher conferences to upgrade participants and student teaching.

5. Coordinate teaching of Agricultural Education courses to take advantage of talents of all staff members.

6. Make a follow-up study of graduates and obtain feed-back.

7. Publish Chye Hean Teoh's research findings on instructional materials.

8. Evolve the South Pacific Ag. Teacher toward a true professional journal.

9. Install and coordinate efforts of the Australian Aid Project in the area of instructional materials development as an integral part of the Ag Education Department.

10. Involve Alafua staff in development of additional instructional materials.

11. Conduct a Third Alafua Conference on Agricultural Education.

12. Launch an in-service training effort for teachers of vocational agriculture in Western Samoa.

13. Cooperate on developing a syllabus for agriculture in the junior high schools of Western Samoa.

14. Provide two years of intern training for Lafita'i Iupati Fuata'i (1984 and 1985).

15. Expand training of instructors to teach in-service courses in countries of the region.

Long Term

1. Improve the standard of excellence in all activities of the Teacher Education Program in Agriculture.

2. Establish the South Pacific Ag. Teacher as a true professional journal.

3. Establish the USP-SOA as the regional center for the development of needed instructional materials.

4. Conduct regional conferences for leaders in Agriculture Education.

5. Expand in-service training for teachers.

6. Complete training of Lafita'i Iupati Fuata'i.

   a. Two years additional work as a Lecturer in Agricultural Education (1986 and 1987).

   b. Two years as Department Chairman during which time the Project TA would serve as an advisor (1988 and 1989).

OTHER AVAILABLE DOCUMENTS

1. Cushman, Harold R. A Task Analysis of the Job of the Teacher of Agriculture in the South Pacific, Apia: USP School of Agriculture, 1982.

2. Calendar, Suva: University of the South Pacific, 1983.

3. "Programme for the Advanced Certificate in Teaching Agriculture." (4 page brieflet) Apia: USP School of Agriculture, 1983.

4. "Teaching Content of the Professional Courses in Agricultural Education" (1 page mimeo) Apia: USP School of Agriculture, 1983.

5. Teoh, Chye Hean. "Instructional Materials for High School Agriculture in the South Pacific Region," (44 page research proposal) Apia: USP School of Agriculture, 1982.

6. Teoh, Chye Hean "Interview Schedule" (14 page mimeo) Apia: USP School of Agriculture, 1982.

7. "Instructional Materials Produced by the First ACTA Student Intake of Pacific Ag.," South Pacific Ag. Teacher Vol. 1 No. 2 : 1 - 50, 1983.

8. "The Second Alafua Conference on Agricultural Education," South Pacific Ag Teacher, Vol. 1, No. 1:17-72, 1983.

9. Fuata'i, Lafita'i Iupati. "Development of a Syllabus in Agriculture for the Junior High Schools of Western Samoa." M.S. Thesis. Ithaca: Cornell University, 1983.

10. "Programme of Work, Agricultural Education, 1982 and 1983," H. Cushman.

11. "Programme of Work, Agricultural Education, 1984," H. Cushman.

B. Agriculture Extension/Communication

Staffing: February 1982 - June 1982 -- Royal D. Colle
June 1982 - July 1984 -- James H. Gould

Purpose: To strengthen and further develop Agricultural Extension/ Communications activities to provide USP with appropriate skills and technology to support agricultural extension programs in the region and improve the capacity of the island nation's extension programs to serve their rural communities. (Revised Scope of Work, March 1982)

The reader is referred to Dr. Colle's report of activities during the first assignment, which laid the groundwork for long-term technical assistance in this area. The following narrative discusses technical assistance beginning in June 1982. It is divided into 5 sections. Each section is a major program within Agricultural Extension, and will include the associated activity objectives, suggested criteria for evaluation, accomplishments and constraints, and emphasis needed in the future.

It is important to note that this review will summarize accomplishments already reported in greater detail in Jim Gould's Quarterly Reports. It is suggested therefore, that those documents be read prior to this document.

Professional Agricultural Extension staff working in the department at Alafua during the report period in addition to Gould included an Australian Volunteer, Roy Murray Prior, who taught one of the extension courses during the second Semester July - November, 1982. Because of this staff limitation, priority has been placed on outreach and associated efforts.

Activity 1: Outreach

Objectives

1. Establishment of regular linkages with agricultural extension programs of the various national ministries or departments of agriculture.

2. Creation of a network of in-country agricultural outreach agents* who are able to assist in the rapid and efficient implementation of programs.

Criteria

1. Employment of up to 8 ALOs* with the necessary administrative and program support sufficient to carry out job responsibilities.

2. Presence of ALO terms of reference and plans of work appropriate to the project objectives.

3. Content and appropriateness of ALO Training.

---

*Agriculture Liaison Officer (ALO) is the term now used in the Project and throughout this narrative, to refer to the in-country outreach agents.

4. IRETA faculty participation in IRETA Newsletter, and Ag Information Network (AIN).

5. IRETA faculty sensitivity to regional needs as expressed in research proposals, development of written/radio information programs.

6. Acceptance of ALO by national departments or ministries of agriculture as measured by access to in-country information, and attitudes by nationals.

7. Evidence that information received is being utilized as measured by informal reactions of recipients; actual utilization for production-related practices.

8. Willingness of countries to share information regarding needs and concerns.

9. Numbers and kinds of people receiving/transmitting information through AIN or other methods.

10. Positive attitudes toward IRETA as a source of information as measured by formal and informal discussion and utilization of IRETA resources.

11. Availability of in-country information regarding significant research and development activity.

Accomplishments and Constraints

A network of agricultural outreach agents has been established. Agents (now called Agricultural Liaison Officers - ALO) have been employed and are working in the Cooks, Fiji, Niue, Solomons, and Tonga. Formal administrative agreements are being sought with each country which outline ALO responsibilities and contributions for IRETA and the country in which the ALO is located. Formal arrangements have also been made with USP Extension Centers for ALO administrative support including payment of salaries where appropriate, and ALO budgets for transport and outer island travel where appropriate and office supplies.

A two-week training program was conducted at Alafua. Six ALOs began the program but the ALO from Kiribati was asked to return home because of personal problems. Training topics included report writing, satellite radio use, computer use, ALO administrative procedures, Agricultural Information Network, and brief exposure to demonstrations as a teaching method and process for Agriculture Council formation. Considerable emphasis was placed on development of individual plans of work; ALOs spent time with faculty in each SOA Department receiving orientation with respect to ongoing research and areas of faculty expertise/interest.

In some countries, tentative interest has been shown in the development of a coordinating mechanism for agricultural development. Towards this end, ALOs were exposed during their training to a process for exploration of this concept which we are calling Agricultural Councils.

Satellite radio will be the major means of communication within the Network. At present ALO staff meetings are held every two weeks for one hour. In addition, the Agricultural Information Network is a formally organized radio system for countries to use in seeking information and technical advice from IRETA faculty.

Partially in response to our interest, computers located in each USP satellite terminal have now been installed and are operational. The computers will provide an additional dimension to our communication ability. AIN responses that are relatively long or include technical information can now be transmitted by computer--improving accuracy, the capacity for more message traffic, and transmission under a wider range of atmospheric conditions.

An IRETA monthly newsletter began in September 1983. This publication contained articles written by ALOs dealing with items of regional agricultural interest; contributions will be encouraged from IRETA faculty. The intent is to develop a newsletter with items of current interest, short, easily read, and of a practical/useful nature. The newsletter will be sent airmail to ensure delivery as quickly as possible.

The employment by IRETA of an Information Officer in September 1983 will greatly aid the development of our information dissemination efforts. This staff member will facilitate responses to AIN requests, assist in the production of the IRETA newsletter and other publications, and coordinate point to point satellite radio conferences.

Future Emphasis: Near-Term

1. An ALO is currently being recruited through the Canadian University Service Organization (CUSO) for Vanuatu. In addition, recruitment must be undertaken for an ALO in Kiribati. In Tuvalu consideration will be given to a part time ALO. Contrary to the plans in the original project document, our feeling at present is that an ALO is necessary for W. Samoa. The recent increase in the Project Outreach budget will make it possible to expand the Network to include Western Samoa.

2. Beyond the filling of posts in each USP country there are other areas which will need emphasis in the future:

   a. ALOs should be reassembled at Alafua in approximately 6 months, for debriefing, additional training and planning.

   b. Building regional recognition of the ALO Network as a viable means of communication and source of agricultural information.

   c. Building USP institutional acknowledgement and support of the outreach effort.

Long Term Needs

1. The long term requirement involves an assessment of this outreach effort in terms of its effectiveness. Is present ALO level of qualifications and experience adequate for needs of the system? Is the present system the best approach to meeting the expressed objectives? In what manner can this system be financed when USAID funds are exhausted? Are there adjustments required in the ALO terms of reference?

2. Access to agricultural data banks through computer links has the potential to greatly increase the information resources for the South Pacific Region. This needs serious consideration in the future.

Activity 2. Teaching

Objective

Development and teaching of courses in Agricultural Extension methods and practices for Diploma and Degree Level Students.

Criteria

1. Number of Agricultural Extension courses being taught to Diploma and Degree students.

2. Relevance of course content as measured by extension professionals in South Pacific Region and USP leadership.

3. Appropriateness of teaching methods.

4. Suitableness of audio-visual equipment and staff competencies for audio-visual use.

Accomplishments and Constraints

There are presently 5 courses offered under the responsibility of the Agricultural Extension Department. The Diploma courses are rural sociology, program development in ag extension, and agricultural extension teaching methods. All three courses have undergone extensive revision in order to ensure that the content reflects regional needs and conditions.

In the Degree Program there are two extension courses offered. One is in teaching methods and is combined with the Diploma Course this semester on a trial basis. Special readings in communications theory have been added for degree students. The second course was formerly a combination teaching methods/extension organization course. Jim Gould revised it extensively to provide both principles of, and practice in ag extension program development. It was offered for the first time last semester. Although additional revision will be helpful, it is felt that the combination of lectures and the opportunity to apply principles in a real world situation represent a meaningful approach to this topic.

Since Jim Gould has been the only faculty member in the department for the past two semesters, some teaching help has been required from staff who have little or no background in this area. Specifically this has been necessary during his absences from campus on ALO business which was extensive in the first semester, and in the teaching of the communication course in the second semester to allow some time for the implementation of the ALO Network.

Related to the teaching assignment has been substantial work in the development of a School audio-visual (AV) capability including selection, repair, ordering, facilitating receipt of, documentation, assembly, training, and scheduling of the equipment. To date the following equipment are operational: 16 mm movie projector, 35 mm auto slide projector, 3 overhead projectors, TV set, camera, classroom video recorder and a portable recorder. In addition Jim Gould has provided the leadership for the modification of one classroom for AV use including installation of curtains, floor power point, air conditioning and wall screen. A small room next to the AV classroom will be used to store all AV equipment following its release from use by the South Pacific Games. All equipment and room scheduling and equipment maintenance will remain the responsibility of the Extension Department.

Future Emphasis: Near Term

1. Staff time needs to be allocated to the consolidation of present extension courses including lecture outlines and the review and duplication of class handouts. Additional student references in extension teaching methods would be useful as would a relevant text(s).

2. Staff training in AV use is required. Towards that end a transparency maker for overhead projection is required.

3. A current study of agriculture manpower within the USP region is needed to assist faculty in the design of appropriate courses, forward planning, and priority setting.

4. With the present emphasis on teaching ag through correspondence courses at USP Extension Centers, a policy needs to be developed regarding this aspect of the teaching program. Included should be a rationale for course selection or nomination, lead time, and assistance for course development.

Long Term Needs

Courses in the process of community development should be developed for both degree and diploma students. This could be under Ag Extension or some other administrative arrangement. In order to do this, Extension will need to become an "Option" in the diploma program similar to Crops or Livestock, and a program of electives will need to be organized in the degree program.

Activity 3: Staff Development

Objective

Implementation of a staff development program for sustaining the Agricultural Extension effort with indigenous personnel.

Criteria

1. Selection, placement, academic program, and achievements of individual(s) chosen for staff development opportunity.

2. Return of individual(s) to SOA and a leadership staff position in Extension.

Accomplishments and Constraints

Malcolm Hazelman, former Head of Ag Extension Department, has now completed one year of a planned three years PhD program in Ag Extension at Cornell University. All academic reports received to date are positive and reflect excellent course achievements.

Long Term Planning

It is clear that Ag Extension needs to be staffed with a minimum of two senior staff. It would be highly desirable for both individuals to be from the USP region, and therefore thought needs to be given to the identification and training of a second person for Ag Extension. Based upon present planning it would appear that such an individual would be needed at Alafua in the beginning of 1987.

Activity 4: In-Service Training

Objectives

1. Development of program linkages through training with the USP Extension (adult and continuing education) Program, including the use of the satellite facilities.

2. Organization and implementation of workshops, short courses and seminars for in-service training of extension workers within the region in cooperation with the subject matter specialists.

Criteria

1. An organized and systematic training plan based upon an understanding of the audience and their needs.

2. Implementation of training programs and their success based upon participation, country representation, and assessment of value by participants.

Accomplishments and Constraints

Efforts in this area have been limited to participation in in-service training for W. Samoa Extension Officers and in support of an IRETA sponsored workshop. Jim Gould has participated in two Samoan workshops, presenting information about the AV system, Extension Officer effectiveness, and result/method demonstrations. Support activites of IRETA functions include AV equipment use, evaluation design, and a workshop session on extension communications.

Meaningful attention can be given to this area at such time as staff assistance becomes available: (a) to make greater use of satellite facilities and development of continuing education, (b) to the development of workshops for extension workers.

Future Emphasis

The Ag Extension fellow and staff of ALOs need to explore in some detail extension worker needs both in terms of subject matter and in extension progress. Consideration needs to be given also to the manner of presentation, timing, and location.

Activity 5: Preparation of Agricultural Extension Materials

Objective

Preparation of technical agricultural information and materials for use by extension workers in the region, by assisting subject matter specialists.

Criteria

1. Technical capacity and supporting organization appropriate to meet current and future materials preparation needs.

2. Quality, suitability, and distribution pattern of materials prepared.

Accomplishments and Constraints

Emphasis during the first year of operations has focused on the acquisition of suitable printing equipment and supplies, the organization of printing operations, modification of facilities, and training of personnel. At the present time there is a well-equipped printing facility and darkroom. Printing equipment includes a 12"x18" camera and exposure frame for production of metal plates and a folding machine. Staff available to assist in the production of printed materials include the IRETA Information Officer, a skilled offset press operator, and a Peace Corps Volunteer in Ag Economics who is a skilled photographer and operates the darkroom facility.

The Print Shop produces classroom materials for instructors and has started producing materials appropriate for regional distribution. Examples to date include the following subjects: goat management, poultry (series of two) and pasture management.

In a major cost control effort, the printing unit will also produce the quarterly Alafua Bulletin which is considered to be an important resource to agricultural professionals in the USP Region. Without this in-house printing capacity it would have been necesssary to seriously curtail this publication or to establish a subscription fee which would be at cross-purposes with the intent of this publication.

Future Emphasis

As in the case of the outreach effort, recognition must be given to the expanded role of faculty in meeting the needs for information production. It takes time to write useful publications and materials for regional use, and there needs to be institutional recognition and support of this need.

Other Available Documents

1. Programme of Work, J.H. Gould, 1982.

2. Terms of Reference, Agricultural Liaison Officers, USP School of Agriculture, 1983.

3. "The ALO Programme: Emphasizing the "E" in IRETA;" Report to RAB Meeting, November 1983.

4. "IRETA South Pacific Agricultural News," A monthly newsletter produced by Agricultural Extension.

5. ALO Letters of Appointment, on file with Secretary and Agricultural Extension.

6. Letters of Agreement regarding ALO Program Establishment between IRETA and Island Countries, on file with Director of IRETA and Agricultural Extension.

C. Agricultural Engineering

Staffing: June - December 1981 -- W. Steinke
November 1982 - December 1983 -- J. Dunn, Sr.

Purpose: To strengthen and reinforce the applied agricultural engineering programs at USP and develop skills in the outreach programs whereby appropriate cost-effective technologies based on basic agricultural engineering principles can be used in rural communities throughout the region.

Objectives: Five objectives are listed for the Engineering area:

a. Development of new courses and reinforcement in existing courses in applied agricultural engineering at the diploma level and degree level.

b. Incorporation of basic laboratory/vocational instruction in engineering and manual skills for such areas as mechanics, carpentry, metal work, welding, electrical skills, and plumbing.

c. Development of program linkages with which the vocational agricultural engineering skills are provided to outreach workers in formal instruction or through workshops and in-service training programs.

d. Adaptation of basic technologies using agricultural engineering skills to assist extension workers with problems on farms and in the rural communities in coordination with the USP Rural Development Center.

e. Establishment of cooperative arrangements with the agricultural disciplines at USP to provide technical services and maintenance for applied research and demonstration programs.

Criteria for Evaluation

Criteria may be drawn from the anticipated outputs as described in the Project Paper and Contract, as well as criteria implicit in the setting up of the basic facilities for an engineering operation.

1. Have new courses been developed for the diploma and degree programs?

2. Have workshop and classroom curriculum been enhanced in existing courses?

3. Were new instructional components introduced in areas such as carpentry, mechanics, metal work, welding, electrical skills or plumbing?

4. Were basic facilities put in order and equipment procured for engineering shop and other activities?

5. Were program linkages developed betwen the ag education and extension/ outreach programs?

6. Has the engineering TA participated in extension or research workshop?

7. Have specific technologies been developed for use in the region?

8. Is there an operational support system which permits other USP discipline to assist in equipment adaptation, use and maintenance?

9. Has a shop technician/manager for Alafua been trained?

10. Has an engineering faculty member been trained?

Accomplishments

The first technical assistance assignment (W. Steinke) carried the full range of research, extension and teaching responsibilities but activities were limited to teaching primarily because of the short (6 month) timeframe. The second assignment (J. Dunn) was focused on objectives (a) and (b) as outlined above: teaching and curriculum development. Accomplishments to date reflect this teaching emphasis.

Criteria 1. New Courses

Three new and revised courses have been developed and approved by the USP Board of Studies as a new curriculum in agricultural engineering. Outlines are provided for the courses: Ag 123, Farm Workshop Practices and Farm Structures; Ag 223, Farm Mechanization; and Ag 313, Surveying: Soil and Water Engineering.

The courses are arranged so that both degree (with small enrollments) and diploma students are scheduled together for one lecture and one laboratory period. An additional lecture period provides in-depth presentations for the degree students. When degree enrollment reaches adequate numbers to warrant a separation, this can be accomplished easily.

Criteria 2. Workshop and Classroom Enhancement of Existing Courses

The teaching effort during the first technical assistance assignment (1981) included some revision of existing courses. Practical student projects were added to the workshop section of the farm structures course, and units on biogas production and drip irrigation were added.

Criteria 3. New Instructional Components

In the revision of the overall curriculum, major new subjects and modules were added. For example, the farm mechanization component of the existing curriculum has been given a full semester because of its relative importance. Topical handouts, study sheets, quizzes and test papers have been developed.

Criteria 4. Basic Facilities and Equipment

Considerable effort has gone into the upgrading and organization of engineering facilities and equipment. Shop facilities were redesigned and purchases initiated (steel shelving for storage and equipment for teaching) during 1981. Work benches and a special tool storage cabinet have now been built and a system established for students to sign equipment in and out. All major equipment for teaching purposes has been purchased (table and band saw, drill press, tool grinder, press, welder, survey equipment, and single-cylinder gas engines for lab use).

A security fence is being installed around the engineering compound. Part of this construction and the design of the gate was used as a class project in Farm Structures. Arrangements have been made to second and convert a small shed for storage of fuel and other inflammable materials away from the main engineering building, thereby reducing the current high level of fire hazard.

Criteria 5. Program Linkages with Ag Education and Extension/Communication

The first technical assistance assignment in engineering was fielded before the ag education and extension/communication programs were operational. In the second assignment, development of the curriculum was given top priority.

Criteria 6. Engineering Participation in Research/Extension Workshops

Mr. Steinke participated in the International Foundation for Science conference in Fiji on edible aroids and presented two papers, dealing with taro silage and a mechanized silage chopper. Mr. Dunn participated in the May 1982 orientation and pre-service training of Extension ALOs at Alafua.

Criteria 7. Technologies for the Region

In 1981 Mr. Steinke proposed a review of needs in the region, but IRETA has not been able to carry this out.

Criteria 8. Operational Support System

No substantial progress. Inter-departmental cooperation or joint projects are rare on campus and there has been little integration of ag engineering considerations into other subject areas.

Criteria 9. Shop Technician/Manager

A six-month staff development program to be held at UH was designed for Mr. Etene Fau, as Head Technician. However, before this was carried out, Mr. Fau resigned the post (February 1983) in order to go into private business. He has not been replaced and no one else has been recommended for the training.

Criteria 10. Engineering Faculty for Alafua

Mr. Tevita Moengangongo was selected by USP as a candidate for training, and began an MS program in agricultural engineering at the University of Hawaii, January 1982. He will complete his degree requirements in December 1984, and join the Alafua faculty in January of 1985. He is making good progress at UH and has focused his research on biogas production from swine waste.

Constraints

Three key constraints have hindered progress in the engineering area: a) staffing -- both faculty and technical support staff for the teaching shop, b) campus organization -- which put responsibility for motor pool maintenance under this department, and c) the design of the technical assistance assignment itself.

a. Staffing. During 1981, the Project provided one technical assistance faculty member to augment the work of the expatriot department chairman -- creating a department of two. That chairman (M. Win) departed in November of 1982, just as the second technical assistance assignment began, leaving Professor Dunn as the sole faculty member in engineering until Mr. Tavale Maiava joined the faculty in August 1983, as an associate lecturer.

During 1981 and 1982, Etene Fau served as Head Technician and teaching assistant in the engineering shop. When Mr. Fau resigned in February 1983, USP included this position as part of a hiring freeze due to budget constraints. The position has remained vacant. In addition, one (of the three) mechanics was relieved of duties and attendance appears to be a problem with others. Thus, support in the shop — used currently for both teaching and maintenance functions -- is not adequate.

b. Campus Organization. In addition to the responsibilities outlined in the contract for the Project Fellow, the Engineering Department carries responsibilities for the following:

(1) the maintenance of all USP vehicles and heavy equipment including: 4 trucks, 3 cars, 2 tractors, 5 mowers and 3 garden tractors;

(2) all plowing and disking for the University farms;

(3) supervision of the shop support staff, normally, 4 employees.

Maintenance of field equipment is a normal part of a functioning agricultural campus. However, these responsibilities consumed an inappropriately large share of Project staff time and attention, thereby reducing progress related to curriculum development, research and extension in agricultural engineering.

Moreover, the result impacts not only agricultural engineering. Lack of supplies parts, and technical staff has resulted in poor service for the entire campus in these important support areas. Full time attention is needed to provide vehicle maintenance and field work on farm and experimental plots.

Discussions were initiated during the November 1983 semi-annual meeting with the Dean (Alafua) and the Director of Planning (USP-Suva) to define a better strategy. One possibility is that the newly-appointed Clerk of Works at Alafua take on the vehicle maintenance responsibility. It has been agreed that the maintenance function, at least, will no longer fall to the Project Fellow in engineering.

c. Design of the Assignment. After three years of experience with this technical assistance area, the Project leaders and engineering faculty of the University of Hawaii agree that the orientation, skills and experience required for effective action in the region may differ importantly between the teaching and research/extension functions of this assignment.

The research/extension aspects involve an assessment of the agricultural and farming systems in various island situations, so that appropriate engineering interventions may be defined. The teaching aspects involve basic instruction in mechanics, construction, safety, welding, surveying and a number of other areas which are normally handled in the U.S. within "vocational agriculture" or "community college" programs.

The two elements cannot and should not be strictly separated. However, it appears that, so long as there are no senior faculty counterparts at Alafua (perhaps to carry the bulk of the teaching load), the assignment may need to be redesigned so that the Project puts two specialized faculty in the field for this assignment, either simultaneously or in sequence.

Future Emphases

1. University and regional discussions are needed regarding the scope and integration of engineering coursework at Alafua. Planning conferences, such as those held in 1980 and 1981 for Agriculture Education, could provide useful input to those evaluating both the coursework and the desirability of an engineering specialization for the campus. There are no other institutions in the region that provide engineering, and Alafua could establish a unique role for itself in this field.

2. Even the absence of such an evaluation, continued attention is required to strengthen the current curriculum. Courses which combine two or more subject matters into one semester should be evaluated for possible expansion.

3. Continued attention to upgrade teaching and research facilities is needed. In particular there have been recommendations for the provision of drafting and lecture rooms.

4. Research and extension programs in engineering need to be developed.

Other Documents

1. Dunn Quarterly Report

2. Dunn Plan of Work

3. Course Outlines and Class Handouts

4. End of Year (1983) Report to the Dean

D. Crop Production

Staffing: February 1982 - December 1983 -- Jill E.Wilson
January 1984 - December 1984 -- Jill E. Wilson

Purpose: To strengthen and further develop programs at USP/SOA/IRETA and in the region which will provide better crop cultivars, improved agronomic practices and more adequate programs of agrotechnology transfer.

OBJECTIVE 1: To develop new units for introduction into the curriculum of diploma and degree level courses.

Criteria to Evaluate Progress

1. Have three new curriculum units been developed and written?

2. Do the curriculum units provide students with the skills and knowledge required in the positions they will undertake?

3. Are the curriculum units comprehensive enough to be used by future staff who may not be knowledgeable in the subject matter?

Accomplishments and Constraints

A detailed written curriculum has been prepared in draft for those units of diploma course Ag 051 which Dr. Wilson teaches. These include improvement of crop production through introduction and evaluation of new cultivars, collection/maintenance/evaluation/utilization of germplasm collections, genetic improvement (breeding), seed multiplication and cropping systems. These units are now being finalized. John Finlay is developing the remainder of the course. Work remaining: (1) integrate, finalize and edit the entire curriculum, (2) prepare instructional materials and (3) expand for use in degree course Ag 311.

A draft written curriculum has been prepared for the root crop production units of the degree course Ag 321 and diploma course Ag 024, including taxonomy, botany, propagation, husbandry, disease and pest management, etc. of Colocasia, Alocasia, Xanthosoma, minor aroids, Dioscorea spp, sweet potato, cassava, potato and Tacca. Work remaining: (1) incorporate country specific data and recommendations collected while travelling in the region and (2) prepare instructional materials.

OBJECTIVE 2: To expand field experiments on crops which hold promise for increasing agricultural productivity, reducing the need for chemical inputs, improving availability of nutritious foods and substituting for imported commodities.

Criteria to Evaluate Progress

1. Have high priority crops been selected?

2. Will the results of breeding programs and field experiments contribute to the objectives?

3. Have field, screenhouse and laboratory trials and experiments been carried out competently?

4. Are plans underway to facilitate multiplication and distribution of propagation materials in the region when they become available in the long term?

5. Have results been disseminated to professional colleagues and national agricultural organizations?

Accomplishments

Germplasm Collections, Alafua

Collections of Colocasia (28 accessions), Alocasia (19 accessions), Xanthosoma (6 accessions), Cyrtosperma (12 accessions), Amorphophallus (1 accession), Dioscorea nummularia (11 accessions), D. alata (8 accessions), D. bulbifera (2 accessions), D. esculenta (1 accession), Tacca (2 accessions) and sweet potato (Ipomoea batatas, 7 accessions) have now been assembled and are being maintained. Accessions of Colocasia, Alocasia and Xanthosoma are being used as parents in breeding programs. Work remaining: (1) continue to collect new accessions, (2) describe and evaluate all accessions in each collection and (3) eliminate duplicates.

Aroid Breeding, Alafua

Aroids are traditionally asexually (vegetatively) propagated, but for breeding purposes sexual propagation is needed to produce the genetic recombinations required. Therefore, for each genus in the breeding program, breeding populations must be propagated from true seeds. To do this, techniques must be developed for each genus to (1) control flowering so that it occurs early in the growth cycle and is abundant and predictable, (2) control pollination and produce large quantities of seeds, (3) rear seedlings and (4) screen breeding populations for desirable characteristics.

For Colocasia taro the first cycle of sexual propagation including flower promotion using gibberellic acid (GA), hand pollination, seed production and seedling rearing has been completed and 168 seedlings have been transplanted to the field for evaluation. A second cycle of sexual propagation was initiated but failed when drought limited plant growth. Results from observation trials on flower promotion with GA indicate that 500 and 750 ppm give satisfactory results with most accessions in the germplasm collection. Work for next year: (1) identify which factors are limiting pollen production and rectify, (2) increase seed production and number of seedlings reared, (3) proceed with breeding sequence, (4) develop efficient method of screening for low acridity and (5) develop efficient method of screening for resistance to Pythium corm rot (in cooperation with Wolfgang Gerlach, Samoan/German Crop Protection Project, Agriculture Department, Nu'u Crop Development Station).

In all accessions of Xanthosoma flowering has been successfully promoted with GA at 750 ppm, but to date all hand pollinations have failed and naturally set seeds have not been found. Work for next year: identify which factors are limiting fertilization and/or embryo development and seed set and rectify.

In Alocasia, data from an experiment to determine the effect of 750 and 1500 ppm GA on two popular cultivars indicated that lower concentrations of GA should be tried. Using GA induced inflorescences, a large number of hand pollinations were made but only two viable seeds were produced and the seedlings did not survive. A second experiment using GA at 750 and 500 ppm followed by hand pollination is presently underway. Work for next year: (1) identify which factors are limiting pollen production and rectify, (2) identify which factors are limiting fertilization and/or embryo development and seed set and rectify, (3) develop techniques for rearing seedlings and (4) develop efficient methods of screening breeding populations for low acridity.

In Cyrtosperma, techniques for extracting seeds, germinating fresh seeds and rearing seedlings have been developed. Trials designed to determine the effects of drying on seed viability have shown that germination percentages are reduced by half or more after 2 or 3 days of drying and storage and all viability is lost after 5 to 8 days of drying and storage. Waxing seeds did not prolong viability. There is some suggestion that dormancy may be involved. This means that seeds must be planted immediately after harvest rather than at times convenient for the breeding program and that seeds cannot be easily exchanged via mail. A technique for screening seedling populations for tolerance to brackish pit water has been developed using 11% sea water and is now being tested for effectiveness. The germplasm collection has grown very poorly in its present location delaying work on flower promotion. Work for next year: (1) relocate collection, (2) develop technique for promoting flowering with GA, (3) develop technique for controlled hand pollination, (4) develop technique for storing and mailing seeds, (5) perfect technique for salt tolerance screening and (6) develop efficient method of screening for low acridity.

Cyrtosperma Breeding, Kiribati

The babai breeding project jointly sponsored by the Ministry of Natural Resource Development (MNRD), IRETA (EEC funds) and FAO continues under the local supervision of Bruce Ratieta of MNRD. A working germplasm collection has been planted at Bikenibeu on Tarawa and a permanent collection has been planted on the babai beetle-free island of Marakei. Using technique developed at Alafua, 1,400 seedlings have now been reared from open pollinated seeds collected from village pits. These will be screened for salt tolerance and reared in pits at Abatao, Tarawa. Bruce visited Alafua during May, 1983, for a mini-workshop on GA application and salt tolerance screening. Work for next year: (1) continue to collect new accessions, (2) describe and evaluate all accessions particularly in terms of maturity and salt tolerance, (3) increase numbers of seeds collected and seedlings reared, (4) adopt technique for GA application and controlled hand pollination as soon as developed at Alafua and (5) proceed with breeding sequence.

Sweet Potato Breeding, Tonga

This cooperative project between the Ministry of Agriculture, Forests and Fisheries (MAFF) and IRETA (with smaller inputs from FAO) is aimed at breeding clones resistant to leaf scab (Elsinoe). Pita Taufatofua of MAFF is the in-country supervisor. Beginning in late 1982, 550 seedling clones derived from 21 breeding families were evaluated in a Hill Trial and 144 clones were selected and replanted for evaluation in the first season Preliminary Trial.

From this trial 43 clones were selected and replanted in the second season Preliminary Trial. This second season Preliminary Trial was harvested and all entries replanted without selection since with excessively dry weather the incidence of leaf scab was too low for effective screening. The 1983 Hill Trial was planted with 60 clones from 4 breeding families reared from seeds obtained from Solomon Islands and seeds were collected from Tongan clones for the 1983 seedling nursery. After receiving permission from Tongan authorities to import shoot tip cultured/disease indexed clones of scab resistant sweet potatoes from abroad, 6 clones originating in Nigeria were received from Instituut voor Plantenziektekundig, Wageningen, Netherlands, and are growing well in post-entry quarantine. They are being multiplied using single-node cuttings and soon will be planted into the field for evaluation. This Nigerian clonal material as well as the seeds from Solomon Islands were imported to broaden the genetic base of the breeding program and to increase the probability of achieving higher levels of scab resistance than those presently within the Tongan germplasm. Work for next year: proceed with the breeding sequence.

Vegetable, Alafua

Twelve accessions of Hibiscus manihot (pele, bele) were collected in Savaii, planted at Moamoa, and evaluated but some of these have now been lost from mismanagement. Phenotypically there were only two types in the collection: lanceolate leaf and broad leaf, with the former having the better quality. Similarly seedlings grown from naturally pollinated seeds collected on Upolu, showed no variability. Therefore, here in Western Samoa there is not enough variability for effective selection and since a request to import seeds to provide variability for a selection program has been denied by the Plant Quarantine Authorities, any future work must be carried out in Melanesia where the species is very diverse. Work remaining: Collate information collected on this species during reconnaissance travel and publish in Alafua Bulletin.

Four accessions of local pumpkin (Cucurbita spp.) have been collected, grown and evaluated but no more work is planned unless a student takes it up as a final year project.

Following very lenghty negotiations with Plant Quarantine Authorities, permission to import seeds of specific exotic vegetables was obtained. Most cultivars will be evaluated by students in practicals and projects, but more formal trials on cucumbers and bulb onions are required. Due to shortage of land and labour, the cucumbers are being evaluated in a series of small observation trials. To date 9 cultivars have been evaluated in 2 trials for yield, mildew resistance, early maturity and fruit type. A time-of-planting bulb onion trial with monthly plantings has been initiated but seedling mortality in the two plantings to date has been excessive due to inadequate screenhouse facilities. Work for next year: continue trials.

A tomato project aimed at selecting cultivars resistant to bacterial wilt (Pseudomonas solanacearum) has been initiated in cooperation with Wolfgang Gerlach at the Agriculture Department's Samoan/German Crop Protection Project, Nu'u. Cultivars and breeding lines from various sources are being screened for bacterial wilt resistance and evaluated for horticultural characteristics and adaptation to Samoan conditions. Selected open pollinated cultivars/lines will

be multiplied and distributed to farmers and home gardeners and superior hybrids will be identified and recommended for import and sale through the Agriculture Store. Of the 34 cultivars and lines screened in flat tests at Nu'u, 21 showed high levels of resistance to bacterial wilt and were evaluated in field observation trials at Alafua. Those which performed best were multiplied and will again be screened for bacterial wilt resistance and then compared in replicated field trials. Work for next year: continue screening, evaluation and multiplication and begin distribution.

Constraints

Field and screenhouse work at Alafua has been constrained by inadequate screenhouse facilities and irregular water supply. In the aroid breeding program poor plant growth and pollen production due to drought stress and low relative humidity have markedly reduced seed production. Since the municipal water supply has been irregular and no water storage tanks were available until September 1983, supplemental watering was not possible during most of the period. This situation improved markedly when two water storage tanks and a pressure pump were provided to insure a constant supply of water and sufficient shade clothes and sprinkler systems were purchased. The situation will improve further when a second screenhouse has been purchased and erected.

Work has been handicapped by inadequate transport for work and shortage of labour and technicians, the latter to assume routine lab, screenhouse and field tasks. The labor situation has improved recently but if field and laboratory work expands as it should, labor will again be limiting. Similarly, the addition of two post-graduate students from Wageningen to our staff has helped to offset the shortage of technicians, but this is only a temporary solution.

Damage to field experiments by animals and theft has been excessive due to inadequate fencing.

The aroid breeding program cannot progress without a quick, easy test for determining acridity in large numbers of plants, preferably seedlings. At Alafua we do not have the expertise to develop such a test and acridity screening should be given high priority as one area of cooperation between SPRAD and UH colleagues.

For the Tongan sweet potato project, the Kiribati Cyrtosperma project, the Samoan aroid and tomato projects, and any additional national cooperative projects initiated in the future, success depends on continued interest and support from host governments and local research staff. It also depends on continued interest and support from IRETA in terms of time off from teaching for travel. But primarily success depends on funding. If these projects expand as they should, each will require funding, but IRETA has very little capacity to fund national cooperative projects in the region. This is a major constraint to IRETA's ability, and consequently the ability of Project staff, to coordinate and promote research in the region. Funding must be available not only for Alafua-based staff but also for the national programs, e.g., for training local counterparts responsible for long term continuation of projects, for equipment and supplies, for skilled and unskilled labor and for transport. Government interest in root crops is increasing in the region and improving production of root crops for import substitution, nutrition and export has

become a stated priority in some countries. However, governments often can not or do not adequately fund research, even "soft funding" (labor, petrol, land leasing) which many AID donors consider the responsibility of host countries. IRETA's success in promoting research in the region will of course depend on the expertise of Alafua-based staff, on funding for equipment at Alafua and regional travel, but equally it will depend on funding to these national cooperative research projects for equipment and supplies, labor, land, petrol for daily work, diesel for boat engines, etc.

OBJECTIVE 3: To prepare technical agricultural information on agronomic practices for use in outreach programs and to organize workshops, short courses and seminars for in-service training of extension workers.

Criteria to Evaluate Progress

1. Have research results been published in the Alafua Agricultural Bulletin and other technical publications and conference proceedings?

2. Have research results been compiled and used to prepare simplified leaflets for extension use?

3. Have Crop Data Sheets been compiled on each of the root crops?

4. In cooperation with Agricultural Education, have instructional materials on vegetables and root crops been prepared for use in vocational agriculture classes?

5. Have Project staff participated in training course and workshops in priority training areas?

Accomplishments and Constraints

Results of research and literature reviews completed to date on Alocasia, Cyrtosperma and Dioscorea nummularia were compiled in two papers presented by Jill Wilson at the Sixth Symposium of the International Society for Tropical Root Crops held in Lima, Peru. She participated in the Commonwealth Workshop on Post Harvest Losses in the South Pacific, the Workshop on the Improvement of Small-scale Cash Crop Farming in Western Samoa, the In-Service Training of Technical Assistants in Crops and Livestock, all held at Alafua, and in two root crops courses for in-service training of national extension and research staff, the first held in Solomon Islands with participants also invited from Vanuatu and the second held at Alafua with participants from Tonga, Niue, Cook Islands, Ponape, Marshall Islands and Western Samoa. In addition Dr. Wilson has conducted 3 mini-workshops: (1) to train Makelesi Tavaiqia from Fiji in taro breeding techniques, (2) to train Bruce Ratieta who supervises the Kiribati Cyrtosperma project in GA application and screening seedlings for tolerance to salinity and (3) to update extension staff from the Western Samoan Department of Agriculture in root crops production.

Whenever possible responses have been made to requests for information from colleagues in the region but these were often delayed for many months until the Information Officer joined the IRETA staff. The lack of a reliable photocopy machine continues to seriously handicap information dissemination. Since the Agricultural Information Network (AIN) is considered one of the most important of IRETA's services to the region and an active, efficient AIN would very quickly improve the image of IRETA in the region, action needs to be taken on this deficiency. Work for next year: (1) coordinate with Agricultural Education to prepare instructional materials on vegetables and root crops for use in vocational agriculture classes, (2) develop crop data sheets on Colocasia, Alocasia, Xanthosoma, yams and sweet potato, (3) continue to respond to requests for information, and (4) contribute to the IRETA newsletter.

OBJECTIVE 4: Through networking with other researchers in the region, to update baseline information on agricultural environments, key crops, productivity and agronomic practices and to introduce systematic planning programs which will enhance the sharing of appropriate agricultural technologies for small scale farming systems.

Criteria to Evaluate Progress

1. Is an active network underway between researchers working on root crops and vegetables in the region?

2. Has progress been made towards developing channels of communication to hold this network together?

3. Which national cooperative research projects have been initiated?

4. Has baseline information on production, marketing, etc., of root crops and vegetables been collected, collated and reported?

5. Have two review reports been prepared on the status of taro and vegetable production and research in the region?

6. Has there been any contribution toward the introduction of a systematic planning process to evaluate the bottlenecks which are preventing taro production from achieving its potential?

Accomplishments and Constraints

During the first 2 years, Dr. Wilson have travelled to Tonga, Cook Islands, Solomon Islands, Fiji, Vanuatu, Kiribati, New Caledonia, American Samoa and Western Samoa to make contact with national research and extension officers and members of the FAO Regional Root Crops Development Project. With them she toured research stations and surveyed farms, gardens and markets to gather information on crops and cropping systems and to identify specific problems in production, processing and marketing. Research reports and extension bulletins have been collected. Emphasis has been placed on root crops and vegetables. From this travel and subsequent communications, a regional network for cooperative research and information exchange in root crops and vegetables is developing. In addition four national cooperative research projects have been

initiated (sweet potato breeding in Tonga, Cyrtosperma breeding in Kiribati, aroid breeding and tomato cultivar selection in Western Samoa) and one regional project (Nutritional Studies of Tropical Root Crop Cultivars from the South Pacific) funded by Australian Centre for International Agricultural Research is now underway with colleagues in Australia, Solomon Islands and Fiji. A strong link has been maintained with the UNDP/FAO-SPC Project "Strengthening Plant Protection and Root Crops Development in the South Pacific" despite transfer of its headquarters to Suva and at their request Dr. Wilson now coordinates their Western Samoan country program. Links have been established with Instituut voor Plantenziektekundig, Wageningen, Netherlands, and Glasshouse Crops Research Institute, England, both producing disease indexed, shoot tip cultures of root crops available for distribution in the region. Work for next year: (1) reconnaissance travel in those countries not yet visited including Tuvalu, Tokelau, Niue, (2) additional trips to Tonga, Solomon Islands, Vanuatu, Kiribati, Western Samoa and Fiji to survey islands not already visited and in the cases of Kiribati, Tonga and Western Samoa, to supervise research projects, (3) initiate a newsletter for root crops and vegetables network, (4) collate, interpret and write up observations collected during reconnaissance travel and (5) produce a review report on the status of taro and taro research in the region identifying bottlenecks which prevent taro production from achieving its potential.

It must be re-emphasized that although PNG and Micronesia are not in the USP or SPRAD project area, it is essential that IRETA develop strong links with these countries since there is much to learn from their traditional production systems and from their research and extension efforts, especially on root crops. Funding needs to be made available for reconnaissance travel to PNG, Marshall Islands and Federated States of Micronesia in particular, so that we do not end up ignoring some of our best resources.

OBJECTIVE 5: To implement staff development plans for sustaining these crop production activities with indigenous personnel.

Criteria to Evaluate Progress

1. How many indigenous staff have been trained?

2. Is their training appropriate to the positions they will undertake when they return?

3. Will positions and support be available at the USP SOA and IRETA for these staff when they complete their training?

4. Is ongoing work at Alafua being carried out in close association with local counterparts?

5. Are national cooperative projects being carried out in close cooperation with indigenous colleagues who will sustain project activities?

Accomplishments and Constraints

Faafouina Afato is completing an MS in the University of Hawaii Agronomy and Soil Science Department with an emphasis on multiple cropping systems. Dr. Wilson visited several times with him at UH to discuss his academic program and thesis research. Nacanieli Tuivavalagi is also enrolled for an MS in the UH Agronomy and Soil Science Department and is completing his thesis research on the erosion-management capabilities of various mulches. Both students are making satisfactory progress in their programs.

At Alafua during 1982, Dr. Wilson worked closely with William Cable who had been identified as her counterpart. However, Bill will now be focusing on soil classification and we must 'rethink' our approach to the Crop Production counterpart position. Dr. Wilson recommends that she concentrate on development of her regional counterparts off-campus until Faafouina Afato has completed his studies at UH and returned to Alafua.

Pita Taufatofua of the Research Division of MAFF in Tonga, Bruce Ratieta of MNRD in Kiribati and Wolfgang Gerlach of the Samoan/German Plant Protection Project, Nu'u, have been identified as cooperators who are working closely with Dr. Wilson and will sustain national project activities after she leaves. Work for next year: Continue to work closely with Pita Taufatofua, Bruce Ratieta and Wolfgang Gerlach.

Teaching and SOA-Related Activities

It has been agreed by the Dean and the Head of Crop Production that Dr. Wilson can contribute most towards accomplishing the goals of the SPRAD Project if she concentrates on research. Consequently, her teaching load now includes only root crops, crop improvement, breeding and genetics, i.e. appropriate units in Ag 004, Ag 024, Ag 051, Ag 311 and Ag 321, with contact hours per semester varying between 30 and 57. However this lighter load can continue, only if the EEC positions presently occupied by John Finlay and Mareko Tofinga continue to be funded and filled and if Leonard Fernando continues to teach in addition to his full time job as Director of IRETA. The Crop Production Department has no USP funded positions, and this is an area for concern.

All courses in Crop Production include field or laboratory practicals and preparation requires many hours of staff time since no qualified technicians are available to assist.

FUTURE EMPHASIS

Next Two Years

Immediate goals have been enumerated under each Objective. In addition, emphasis will be place on the following:

1. Organize a regional workshop to bring together researchers, government officials, farmers, exporters, importers, input suppliers, shipping lines, airlines, etc. to identify bottlenecks to taro production and priorities for action.

2. Produce a review report on the status of vegetable production and research in the region identifying bottlenecks which prevent vegetable production from achieving its potential.

3. Provide apprentice training for Faafouina Afato when he returns to Alafua.

4. Publish results of research in Alafua Bulletin and professional journals.

5. Prepare a written curriculum for a seed technology course which could be used in degree and diploma teaching at Alafua and in national and regional workshops.

6. Initiate one additional national cooperative research project.

Long Term

1. Continue to update curriculum developed.

2. Continue breeding sequences in all breeding programs.

3. Continue to expand, describe and evaluate germplasm collections.

4. Distribute superior clones of root crops from germplasm collections and breeding programs.

5. Initiate research according to priorities for action identified during regional workshop organized to introduce systematic planning for taro production.

6. As a follow up to the regional workshop, organize national workshops to introduce systematic planning for taro production and research at the national level.

7. Organize a regional workshop to bring together researchers, government officials, farmers, exporter, importers, input suppliers, shippers, etc. to identify bottlenecks to vegetable production and priorities for action.

8. Continue to publish results of research.

9. Initiate additional national cooperative research projects.

10. Continue to provide apprentice training for Faafouina Afato.

Other Available Documents

Programme of Work for Jill Wilson

Wilson, J.E. 1983. Research Project Proposal: Production of scab resistant clones of sweet potato through selection and breeding (in Tonga).

Other Research Project Proposals submitted to IRETA by Jill Wilson.

Cable, W.J. and Wilson, J.E. 1983. Dioscorea nummularia Lam.: the primary edible yam of Western Samoa. Paper presented at 6th Symposium International Society for Tropical Root Crops, Feb. 21-26, Lima, Peru.

Wilson , J.E. and Cable W.J. 1983. Promotion of flowering, seed production and seedling screening in minor edible aroids. Paper presented at 6th Symposium International Society for Tropical Root Crops, Feb., 21-26, Lima, Peru.

Wilson, J.E. 1983. Storage of taro corms and leaves. Paper presented at Commonwealth Workshop on Post-Harvest Losses in the South Pacific, May 25-31, USP, Alafua.

Wilson, J.E. 1983. Storage of root crops. Paper presented at Commonwealth Workshop on Post-Harvest Losses in the South Pacific, May 25-31, USP, Alafua.

Wilson, J.E., Opio, F. and Cable, W.J. 1983. Review of production and marketing of taro in Western Samoa. Paper presented at Workshop on the Improvement of Small-scale Cash Crop Farming, Aug. 8-12, USP, Alafua.

Project Proposal to ACIAR. 1983. Nutritional Studies of Tropical Root Crop Cultivars from the South Pacific.

E. Soils

Staffing: February - December 1981 -- R. Chase

Purpose: The original Project design combined Crop Production and Soils subject areas into a single Project component. Program input and activities were to be closely coordinated and worked toward a shared set of objectives whose purpose was:

"To strengthen and further develop programs at USP and in the region which will provide better crop varieties, improved agronomic practices, more adequate programs of agrotechnology transfer and capability to do laboratory analyses of soils and crops for diagnostic purposes." (Project Paper, p. 14)

The revisions to the scope of work mandated in February 1982 changed this design in the following ways:

a. Crop Production and Soils were separated into distinct Project components;

b. Technical Assistance man-months specifically for soils were reduced from 58 to 13 (leaving 3 months of technical assistance after the Chase assignment); and

c. Graduate degree training in Agronomy/Soil Science was increased from 24 to 36 months of support for one of the (two) students.

The jointly-held $75,000-equipment fund continue to be shared, with approximately 35% of the funds available to Soils.

Objectives

The current Project objectives in Soils are:

1. To review ongoing regional taxonomic activity.
2. To establish linkages with appropriate centers and institutions.
3. To plan a strategy for developing a soils program at IRETA.
4. Train one regional staff member for Alafua.

Criteria

To evaluate this area, criteria are drawn from activity outputs appropriate to the original assignments (Project Paper outputs) and those now listed in the revised scope of work (revised Contract, 1982):

1. Have new materials been incorporated into existing curricula?
2. Have functional program linkages been established with crop production, ag education and ag extension/communication components?

3. Has a research/extension program been initiated? Have regional workshops been conducted?

4. Has a diagnostic facility been established?

5. Have linkages with other appropriate centers and institutions been established?

6. Has a development plan for research, extension and education activities been developed?

7. Has one regional person been trained?

Accomplishments

Criteria 1. Curriculum Materials

Mr. Chase taught: Introduction to Soil Science, Crop Science and Field Experiment Practice. New materials were incorporated into all three courses.

Criteria 2. Linkages with Other Project Areas

Neither the ag education, nor ag extension/communication departments were functioning when Mr. Chase was on assignment. Project TAs assumed assignments in these areas in February of 1982.

Criteria 3. Research/Extension

Research was conducted on a variety of crops. Variety trials were conducted comparing growth and yield on maize, using WESTEC land; results will be reported in the Alafua Bulletin in 1984. Fertilizer treatments for two varieties of sorghum and four varieties of maize were undertaken in cooperation with crop production and soils faculty; results will be published in the Alafua Bulletin. In consultation with the project on Nitrogen Fixation in Tropical Agricultural Legumes (NifTAL - USAID/UH) a program of legume innoculation trials were initiated in soybean and cowpea.

Criteria 4. Diagnostic Facility

Approximately $3,000 of laboratory, teaching and diagnostic equipment has been purchased and specifications were established for a major piece of equipment for the diagnostic facility, the atomic absorption spectrophotometer (AA). This purchase has been delayed in anticipation of a review of diagnostic services available through other USP units and in the region.

Criteria 5. Linkages with Other Institutions

The three-month technical assistance planning assignment has not been fielded. No substantial progress in this area.

Criteria 6. Development Plan

No substantial progress in this area.

Criteria 7. Regional Person

Mr. Nacanieli Tuivavalagi began an M.S. program at the UH Department of Agronomy and Soil Science in January 1982. He is making satisfactory progress and his thesis work will focus on the erosion-management capabilities of various mulches. He will return to the Alafua faculty in January 1985.

Constraints

Constraints in this program area center around the very limited staff and facilities of the Soils Department at Alafua. There are two permanent faculty positions, one Peace Corps Volunteer and two technical staff. Teaching responsibilities are heavy and coordination of research and extension activities within an overall IRETA program is lacking. Local, and to some extent regional, demand for diagnostic services also draws staff time away from program development activities.

Future emphasis in the next two years will be to accomplish the remaining 3 months of authorized technical assistance assignment. That technical assistance will focus on objectives 2 and 3 listed above with the revised scope of work. With the possibility of program expansion in 1984, reinstatement of long-term technical assistance in this area is a high priority.

Long-term planning will explore ways to bring needed program development resources to the Soils Department and at the same time strengthen the collaboration and sharing of resources between that department and other units of the USP--at Alafua and Suva campuses, and with the rural Development Center in Tonga.

F. Library

Objectives

The original objectives for the technical assistance program for the library can be found in the Project Paper. In February 1982 the authorized technical assistance program for USP Alafua Library development was significantly reduced. Technical assistance man-months were changed from 21 to zero, and funding for library equipment, books and periodicals was reduced from $90,000 to $70,000. Provision for 24 months of graduate training was retained.

The overall Project goal in this area is to enhance the institutionalization of the agricultural REE activities at USP by developing appropriate in-house skills, library facilities, and services. Therefore, by the end of the Project, it is expected that USP will have an adequate agricultural library with trained staff capable of providing relevant resources and services appropriate to the professional staff and students, local, national and regional institutions.

The contract Project Manager oversees the library development program, which focuses on the expansion of library resources, response capabilities and information retrieval and dissemination services. There are four components to the program: 1) identification and purchase of appropriate equipment, books and periodicals; 2) design and guidance of librarian training program; 3) library development needs assessment and planning with USP Library staff (Alafua and Suva), and others; and 4) provision of limited short-term technical assistance through non-SPRAD funds.

Criteria

Criteria for measuring meaningful progress in this program area, include: 1) mechanisms in place for identifying and acquiring appropriate equipment, books and periodicals; 2) selection and training of librarian candidate who is committed to working with the USP; 3) mechanisms in place at USP for hiring and supporting librarian candidate after training; 4) working relationship established between the Project Manager and USP Library staff at Alafua and Suva as a basis for needs assessment and planning; 5) clarification of institutional relationship between USP Suva and Alafua Libraries; 6) clarification of library's role in support of Alafua campus department and IRETA programs; and 7) demonstrated improved ability of Alafua Library to respond to REE program needs.

Accomplishments

Accomplishments to date in this area include:

1) acquisition of extensive shelving and other support equipment, as outlined in the contract illustrative equipment list and specified by acting Alafua Librarians;

2) survey of current journal holdings (title and back issues) as a basis for future subscriptions;

3) with the help of UH Information Specialist, Mrs. Barbara Bird, identification of appropriate basic journal holdings for Alafua;

4) acquisition of more than 600 titles, and 26 journal subscriptions as proposed by the acting Alafua Librarian, Project Manager, TA staff, or Mrs. Bird;

5) completion of a specially-designed 6-month apprenticeship in the USP Library system by librarian candidate Suaesi Valasi, prior to beginning a Master of Library Studies academic program at UH in August 1983;

6) establishment of smooth working relationships with acting (British Volunteer) Alafua Librarian Frances Murphy (to January 1982) and with her successor Robert Yehl (Peace Corps Volunteer from November 1982);

7) 5 days of Project Manager consultation (August 1981) with former USP Head Librarian Harold Holdsworth regarding Alafua library development, with specific attention to the relationship with USP Suva Library;

8) Project Manager consultation (September 1982, March, May and June 1983) with acting Alafua Librarian Robert Yehl regarding library development; and

9) arrangements for 4 weeks of on-site consultation (Mrs. Barbara Bird) October 1983 (provided through UH Title XII Strengthening Grant funds).

Constraints

Major constraints are: 1) lack of a technical assistance staff component; 2) unclear institutional relationship between USP Suva and Alafua Libraries; 3) unclear role of Alafua Library in support of campus teaching, research and extension programs; 4) inadequate support staff for Alafua Library in terms of number and training; and 5) lack of working inventory of Alafua Library holdings.

Future Emphasis

Program emphasis over the next two years will include: 1) major acquisition of bookstock and periodical subscriptions; 2) computerization of library records; 3) librarian candidate training; 4) establishment of permanent librarian at Alafua with adequate operating budget; 5) clarification and demonstration of an expanded role for the Alafua Library on campus and in the region; and 6) identification of support staff training needs and potential opportunities.

Reinstatement of SPRAD faculty technical assistance in this area has high priority and was discussed at the Project meetings in November 1983. Discussions focused on the design of an assignment (12-24 months) that would interface heavily with Ag Extension/Communication.

G. Human Resources Development

This component of the SPRAD Project was originally linked with library services development in the Project Paper. Twelve man-months of technical assistance were planned for activities which would increase USP's capability to address socioeconomic aspects of agricultural development. Fifty thousand dollars were included for carrying out relevant studies.

A program planning trip was conducted by UH (J. O'Reilly) in the region, August 1981. Activities in this subject area have not been implemented, however, due to the February 1982 reduction of the SPRAD scope of work, when this technical assistance area was deleted.

The UH and Cornell are able to indirectly support the goals of this subject area through: 1) agriculture extension technical assistance, which was increased by 12 man-months during the 1982 contract revision; and 2) enhanced programs for SPRAD-sponsored graduate students which prepare them to take more leadership in human resources development upon returning to the region.

H. Nutrition/Food Technology

The original Project Paper describes technical assistance, training and equipment planned for the area of nutrition and food technology. A program planning trip in the region was also undertaken in late 1981 by a senior UH faculty member (R. Van Reen). Before program activities were implemented, however, the Project contract was significantly reduced, and this subject area deleted from the scope of work (February 1982).

During that 1982 prioritizing of technical assistance subject areas, nutrition and food technology were evaluated as requiring major inputs for development. The investment needed to strengthen this regional capability exceeds the resources originally provided through the SPRAD Project.

Indirect support is given to this subject area by regular interaction (idea sharing and small cooperative projects) between TA staff assigned to the Alafua Campus and nutrition/food technology faculty there, especially crop production, extension and agricultural engineering. Were travel funds available, it might be possible for UH faculty to participate in IRETA-sponsored workshops in this subject area.

SECTION IV. INSTITUTIONAL DEVELOPMENT

The SPRAD Project is one of many inputs into the development of the Alafua Campus of the USP. Other inputs are provided through development assistance projects from Germany, Australia, New Zealand and the EEC. Further, the development efforts commenced before the initiation of the SPRAD Project. Annexes D, E and F of the Project Paper describe some of the plans for the Campus and its relationship to other units within the University of the South Pacific. Annexes D and E which deal primarily with the teaching program, indicate a projected growth in student body from a total of 149 in 1980 to 264 in 1983. In addition, the notes indicate that degrees will be offered with majors in livestock, crops, plant protection, soils, extension, and ag education as well as general agriculture. SPRAD inputs relate to the areas of crops, plant protection, soils, extension and ag education, as well as general agriculture.

For a variety of reasons, the expected growth in student numbers enrolled in agricultural programs at the USP has not taken place. In the two-year Diploma program, specialization in animals, plant or food technology is possible in the second year. A practical training course at the Certificate level has also been introduced. The Degree program remains a three year general qualification. The subjects taught and the course content have been updated to suit this professional qualification. Implementation of a four-year B. Agr. Sc. degree is likely to be delayed until numbers of students justify its introduction.

IRETA is addressed in Annex F and a roster of immediate activities, which may be interpreted as goals, is provided. These include the establishment of a regional Rural Science Information Service, the establishment of a regional consultancy service, the provision of short-term training, and involvement with assessments of regional research requirements.

A. SPRAD Institutional Development Objectives

Overall, the objectives of the Project are defined on page 3 of the Project Paper: "the following conditions should exist by the end of the project and indicate an achievement of the project purpose:

1. An agricultural research, education and extension (REE) resource base in place at the USP School of Agriculture and Institute for Research, Extension and Training in Agriculture (IRETA) on the Alafua Campus, capable of providing support to the respective island country agricultural development programs.

2. An established academic and in-service training program containing expanded and relevant course offerings, improved curricula and skills development that will provide the region with the necessary human resource base adequate to serve the agricultural sector.

3. An operational system within the USP whereby selected packages of appropriate technology in five major activity areas are available for use throughout the region and which can assist in increasing the productivity, improving the nutritional status and/or in increasing the income of rural inhabitants.

4. A functional outreach program by the USP providing timely, continuing and appropriate dissemination of agricultural information and services to national agricultural institutions, private sector, and community organizations."

Specific objectives and outcomes for each subject area were outlined in Section III. Implicit in these overall objectives are contributions to the more general functions of a campus which needs to be able to: assess regional needs for teaching, research, extension and training programming; plan programs to meet those needs; allocate resources and implement the programs; evaluate the effectiveness of programs as input to further planning.

In order to accomplish this type of management, linkages with other regional and national institutions are needed, as well as communications networks for managing regional projects. In other words, mechanisms need to be developed which would integrate SPRAD resources with other projects and programs at the USP/Alafua.

B. Criteria for Evaluating Progress

In order to accomplish these objectives, various mechanisms and procedures are needed. These include:

1. Needs analysis and program planning for the REE program. If Alafua is to provide support to the respective island country agriculture development programs, procedures and mechanisms need to be set up to conduct needs analyses, to translate the outcomes of those analyses into prioritized programs for research, extension and training, and to evaluate the effectiveness of programs over time.

2. Staff development for USP faculty. In addition to the training being provided for specific subject area personnel, in-service training is needed for on-campus faculty so that they, too, are up-to-date with technologies and approaches to island agriculture.

3. Linkages with other USP units. Alafua is one campus within a University system. Other resources within that system can and should be tapped to strengthen the University's response to the region. Linkages with other subject matter units, such as the Institute for Natural Resources and the Rural Development Center, and linkages with the service functions of the University, such as the library and the extension information network, can help Alafua mount programs without duplicating expensive resources. Mechanisms are needed for coordinating functions which are carried out in several locations.

4. Linkages with national governments and institutions. National governments are the direct clients for Alafua's services and so communication and interaction is essential. Many countries have national institutions working on agricultural development; Alafua needs links with these institutions so that complementary programs are developed which avoid duplication of programs in a region where human and other resources are very scarce.

5. Linkages with other regional institutions. A variety of institutions have functioned at the regional level for many years. In some cases, information directly related to needs assessments and/or solutions to agricultural problems already exists. Further, these institutions can provide regular forums for contact with national governments and other important resources.

6. Ability to use SPRAD resources effectively. SPRAD is one of many inputs to the Alafua Campus. Its personnel and resources for equipment, workshops and outreach programs need to be integrated into an overall development plan for the Campus. This coordination requires effective interfaces with other projects at the campus and the USP, such as the German program in crop protection which complements the crop production area, or the USAID satellite communication grant which is closely related to the capabilities of the outreach network based at Alafua. In this same vein, the components of the SPRAD Project itself, and its team members, need to be coordinated so that the outcome of those efforts is greater than the simple sum of individual subject area activities--training, research or curriculum efforts.

7. Linkages with other international projects. In the region, a number of major international development efforts are underway, for example the New Zealand-sponsored soils surveys in Fiji and elsewhere. If Alafua is to become a key actor in meeting regional agriculture needs, connections are needed with these projects so that personnel and programs at Alafua take advantage of both the resources and the knowledge being generated. Tropical agriculture development projects in other parts of the world may also relate to the needs of the nations of the Pacific. Mechanisms for linking with these efforts need to be developed so that Alafua can become a conduit for information into the region.

C. Accomplishments and Constraints

1. Needs analysis and program planning.

Accomplishments

a. Meetings of the regional Directors of Agriculture in their capacity as the Regional Research Advisory Board to IRETA are becoming regular, annual events. Further, a shift in attitude has become evident which indicates that the Directors are taking more "ownership" of Alafua as a regional institution. In 1982, the Directors agreed that one full day of business provided an inadequate timeframe for considered input to the program; the Directors agreed to come one day early for the next meeting, in order to have an opportunity to review the written material before the formal meeting, and to meet with various staff. The third annual meeting of the RRAB was scheduled for November 24-27, 1983.

b. In 1983, IRETA co-sponsored a regional workshop in problems associated with "post-harvest transport and handling of foods." This was the first workshop whose purpose was to bring together country representatives and experts to assess the needs of individual nations and determine the types of steps that might be taken to address those needs. The intent was to identify research priorities in the region which could be used as a basis for seeking further donor support.

c. In 1981 a workshop was held which brought together the Directors of Education from the region. The purpose of this workshop involved the identification of needs for training high school teachers of agriculture, review and approval of a teacher education curriculum for Alafua, and decisions regarding the structure of such programs.

d. SPRAD technical assistance faculty have travelled the region extensively. The purpose for their travel was not only to conduct research, specific training or workshops, but also to establish working relationships with subject matter colleagues in each nation. During the first two years of the project, this has been the most effective means of establishing credibility for Alafua and of learning about the needs for training, education and research in each of the countries. Several collaborative projects are now underway in both research and extension. In at least one case, formal government commitments have been made to support the Project (Tongan sweet potato project).

e. A review of the national origin of the student body reveals a mix of students from ten of the eleven member countries. Overall student numbers are below those intakes anticipated in the Project Paper Annex D/E. Intake for the teacher training program, Advanced Certificate of Teaching in Agriculture (ACTA), is outlined in Section III.A. Intake for ACTA has been hindered by the increase in tuition and fees. The increase may mean that SPRAD scholarship funds will support about half as many individuals as originally planned.

Constraints

Rapid changes in the leadership of the Campus and the University has made it very difficult to plan or mount long-range programs. At the USP/Suva, changes have occurred in central administration at the level of the Vice-Chancellor, and the Director of Planning and Development. At the Alafua Campus, changes occurred first in 1982 and 1983, with the positions of Dean of the Campus, and the Director of IRETA. Stability in leadership is a key to institutional development.

A contributing factor involves the lack of full-time administrative leadership for the Alafua Campus. Neither the Dean, Head of School nor the Director of IRETA are full-time management positions. Thus, the individuals in these roles carry research and teaching responsibilities, in addition to the program planning and management required for a developing institution.

2. Staff Development for USP Faculty.

Staff development has taken two forms: post-graduate training for project participants and in-service training for Alafua staff.

Six participant trainees were sent to the University of Hawaii (4) and Cornell University (2). These individuals are completing degrees in soils science, crop production, agricultural engineering, library science, agriculture education and agriculture extension. Lafita'i Fuata'i completed his training in agriculture education at Cornell and returned to the Alafua Campus in August 1983. The other five students are making satisfactory progress in their programs, all at Master's level except agricultural extension which is a PhD program. They are expected to return to the Alafua Campus to accept faculty positions, in January and August of 1985. The timing will allow overlap with the technical assistance faculty in their areas, as an apprenticeship to the senior faculty in their respective fields.

During 1981 the need for more specialized training for the engineering shop foreman was identified as a priority, because the lack of skills was requiring that the SPRAD faculty TA spend overmuch time directing shop activities. A training program, consisting of 6 months hands-on work with the engineering department and shop at the UH, was arranged. Unfortunately, the individual in the position resigned to go into private business and a suitable candidate for this type of training has not been found.

In May/June of 1983, assistance in developing skills to use the microcomputer at the Alafua Campus was requested. Hardware needs were assessed and peripherals purchased to upgrade the microcomputer at Alafua; a faculty member from the UH (P.S. Leung, Department of Agricultural and Resource Economics) undertook a 10-day assignment to: train faculty and staff at Alafua; develop some software programs for campus management; participate as a trainer in a regional workshop at Suva; and work with administrators at Suva to assess the potential for a computer-based communication network using the satellite system.

Constraints

The original project provided funds for 10 participant trainees. In February 1982 when the Project allocations were reduced, the numbers were cut from 10 to the 6 traineeships now underway.

Several other requests have come to the UH asking for faculty participation in specific conferences or workshops. Due to timing and, in some cases, lack of funds, faculty have been unable to respond and participate in these ad hoc situations.

3. Linkages with other USP Units.

SPRAD faculty have identified a number of situations where linkages with other USP units would be useful: the Soils Analysis Lab, the Institute of Natural Resources, the School of Education, the Extension Information Network, the Rural Development Center. Responsibility for inter-campus program planning rests with administration and therefore, only in a few cases, directly related to program needs, have SPRAD faculty been involved. One example involves the participation by the School of Education in the teacher training curriculum.

Some confusion is apparent regarding responsibilities for library and extension information system functions. It would be helpful to address the goals of these programs and corollary divisions of responsibility, so that personnel at all locations can proceed more energetically with their programs.

4. Linkages with national governments and institutions.

The Project has pursued these linkages through the subject area programs. The conferences, workshops, and professional networks mentioned in Section IV, C.(1) above outlined linkages established through the teacher education program, the extension outreach effort, and the crop production program. In addition, the extension program TA has established direct link with the Heads of Agriculture in Fiji, Cooks, Tonga, Solomon Islands, Niue, in order to set up the Agriculture Liaison Officer positions in those countries. Off-campus student teaching assignments have involved seven (7) Permanent Secretaries for Education and three secondary schools.

An Agriculture Information Network was established by the Ag Extension TA during 1982/83. This network was the implementation of the Rural Science Information Service noted on p. 55. It is further explained in Section III.B.

5. Linkages with other regional institutions.

Informal linkages and working relationships have been established with South Pacific Commission (SPC), and the UNDP/FAO-SPC Project for Strengthening Plant Protection and Root Crops Development in the South Pacific.

6. Ability to use SPRAD resources effectively.

Accomplishments

The Project provides human, financial and physical resources to the campus. The personnel have been appointed to the USP faculty and serve as members of the campus departments. Their role is one of development and, to be effective, they need to be integrated into a set of complementary resources. These resources can range from the simple, such as offices and desks, to the more complex, such as faculty colleagues and support services, like the library or satellite system.

In agriculture education and the library, services of Peace Corps volunteers now constitute an essential input. Graduate students from the Agricultural University, Wageningen have been attracted to the crop production area, and are providing field assistance. A doctoral candidate in agriculture education from Cornell has conducted an assessment of the needs for agricultural instructional materials in the secondary schools of the region.

Procedures were developed very early to assure that the physical resources provided by the project, overall a total of $360,000 worth of equipment, were well utilized by the program needs of the campus. While the Project Paper and contract provide illustrative lists, items and characteristics of equipment required further specification before purchase. SPRAD faculty worked with Alafua faculty to develop the specifications; these lists were then approved through the Dean's office at Alafua and, finally through the universities. An inventory of equipment purchases is provided in Section II of this report.

The financial resources provided through the Project are all targeted through the subject areas to specific program components, e.g., equipment, personnel, travel, etc. A consequence of the budget allocation reduction in 1982 was the elimination of a contingency fund of $240,000 which had originally been built into the budget. This has been an important loss, restricting the ability of the contractors to respond to ad hoc requests, for example for U.S.-based faculty to participate in workshops or training programs in the region. Despite this loss, the Project has been able to respond in a number of cases by requesting special approval from the USAID Project Manager. A good example is the purchase of the computer peripherals. Such items were not anticipated in the Project design; yet, joint specification of the equipment permitted the development of a program-related request which USAID approved within a matter of weeks.

Coordination of the subject matter components of the SPRAD Project is also required in order to make the best use of resources. To date, the team members have functioned somewhat independently. This behavior has been necessitated by the sheer number of activities in which each TA engages. Coordination has centered around logistics and finances, rather than program, to this point. While understandable from certain perspectives, it will be very important to each of the subject areas, that there be more coordination as the Project progresses. For example, as teacher training materials are developed, the Ag Education TA will need to draw upon the subject matter expertise of the TAs in engineering, crop production, soils, etc. Similarly, good communication and collaborative networks are needed to conduct research and training in each of the other TA areas, e.g., extension, crop production, engineering and soils.

Constraints

Planning for the use of SPRAD resources has been hampered by a lack of information about a) other donor programs and contributions to the USP and Alafua, and b) other major regional agricultural development programs. There are at least six nations involved in major development assistance programs for the region, contributing a combined level of resources which is quite significant. Development assistance funds are, however, scarce resources, and should be used for maximum impact. It would assist the leadership of the SPRAD Project if information and perhaps, discussions were possible with other donors, to assure that programs were developed in a complementary and non-duplicative manner.

In each of the technical assistance areas, the complementary resources have been problemmatic and required directed attention from both USP and contractor leaders. In most cases, the problem was one of providing colleagues within the subject area, such as Engineering and Extension. If SPRAD faculty are to function in a "development" role, they cannot also provide a substitute for baseline faculty or staff functions in their subject area departments. The lack of professional staff hindered progress in engineering, and extension, where lecturers were needed to help carry the teaching load. Staff assistance hindered progress in crop production, engineering, and extension, who required the support of lab and field technicians and labor, a shop foreman, information officer, and satellite program manager, respectively. These personnel needs are under discussion and steps are being taken which will begin to address them.

In the original Project design, there was no provision for technical assistance that focused on overall program or institutional management. This gap has been recognized by the collaborating institutions and was discussed at the May and November 1983 Semi-Annual Evaluation meetings. This impacts the Project's ability to contribute effectively in areas discussed in this section of the report. Discussions are underway to determine an appropriate strategy for incorporating this type of expertise into the Project. USP/Suva is also considering the establishment of an administrative internship for the Alafua Campus.

The two major constraints to coordination within the team are a) the workload, mentioned above, and b) the lack of a "team leader" on-site with clear responsibility for integrating the program at this level. Although the Project created the position of Senior Fellow, that role represents a compromise. There was a clear wish at the design phase, to avoid a structure which might serve to separate project members from the Alafua faculty. While acknowledging the importance of this consideration, Project leadership at USP and UH/Cornell, recognized that this choice involved a trade-off which has been costly. Discussions were initiated in May 1983 and pursued in November which may lead to modifications of the structure of the team.

As the Project gets underway, opportunities for improving programs and for responding to ad hoc requests that can contribute to institutional development are identified and arise unexpectedly. The elimination of the contingency fund has hampered the contractor's ability to be responsive in these situations. Although the USAID Project Manager has worked with the universities to permit some flexibility, without the contingency fund, it may be necessary to trade-off specific program elements in order to respond to ad hoc requests. The restoration of a contingency fund will also be proposed as an item for Project expansion.

7. Linkages with other international projects.

Linkages have been established with the FAO/UNDP-SPC root crops and crop protection project which was headquartered in Alafua until 1983, when headquarters were moved to Suva. The SPRAD crop production TA serves as coordinator for the Western Samoa segment of the FAO/UNDP project. In 1982, at the FAO/UNDP Review Meeting, the USP was asked to take responsibility for coordinating this regional effort if the FAO/UNDP-SPC project were not renewed. That request is an indicator of the strength and importance of the linkage.

D. Future Emphases

Collaborators have agreed that it is time to direct specific resources to the matter of overall campus capability for planning and management. In the near-term this will mean the design of a technical assistance program for the coming two year period, before the end of this phase.

In the long-run, if the project were to move into a second phase, this type of technical assistance and training would need to be designed so that capability for planning and management becomes institutionalized. In addition, the provision of on-site, in-service training for various members of the Alafua Campus and staff should be considered. Training would differ depending upon the participants, but would be geared to the planning and design of academic and research programs, and the management of physical and fiscal resources toward that end.

There is a need to knit Alafua more closely into the USP system, and into networks of regional and national organizations involved with agriculture research, teaching and extension. For an institution whose clientele stretch over several significantly different agriculture environments, and several major cultural and social groups, it is imperative that attention be given to developing mechanisms for networking with other organizations throughout the region, and the tropical world.

E. Other Documents

A number of expert teams have made recommendations and assessments pertinent to the development of the Alafua Campus and its programs. The review team is referred to the documents in the Appendix for these comments.

Post Script

A final point can be made concerning the challenge represented by the creation and development of an institutional resource for a clientele represented by eleven independent nations. In order to evaluate the success of the venture, ultimately the clientele need to provide an indication of satisfaction with the service.

The issue is one of developing credibility, a fragile and amorphous attribute. We believe that SPRAD and its faculty TAs are contributing to the credibility of the institution through their programs, and the networks they have established. In two years, that represents progress. Over the long-haul, the institution needs to build-in a continuing expertise so that the capability to respond and maintain the networks is "institutionalized" and will continue after SPRAD personnel depart. That process may require 15 or more years.