PD-AAP-147
ISN: 34306

662-0002 / 15

CLASSIFICATION

PROJECT EVALUATION SUMMARY (PES) -- PART I

Report Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
SEYCHELLES FOOD CROPS RESEARCH	662-0002	REDSO/ESA

4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY)

1997

☒ REGULAR EVALUATION ☐ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 80	B. Final Obligation Expected FY 84	C. Final Input Delivery FY 84	A. Total $ 2,155,000 B. U.S. $ 1,520,000	From (month/yr.) 7/81 To (month/yr.) 2/84 Date of Evaluation Review FEBRUARY, 1984

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
Work plan for interim short-term assistance to GAC Research Center	GOS	3/15/84
Extension of PACD for a period of one year, provided GOS work plan is considered appropriate	REDSO/ESA Project Manager, Director	3/30/84
PIL for description of potential short-term tasks to be done in period 4/84-3/85	REDSO/ESA Project Manager	3/30/84
Investigation of SECID purchase of equipment for GOS and possible reimbursement to Project	CONTRACT Project Coordinator REDSO/ESA Project Manager	5/31/84
Major disease and control brochure completed, with manual on soil management and fertilizer recommendations	SECID Plant pathologist and soil scientist	3/31/84

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☐ Implementation Plan e.g., CPI Network
- ☐ PIO/T
- ☐ PIO/C
- ☐ PIO/P
- ☒ Other (Specify) PIL to be written and extended PACD to be issued
- ☐ Other (Specify)

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☒ Change Project Design and/or ☐ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Timm Harris, Project Officer, REDSO/ESA

Bill Faught, Agriculture Economist, REDSO/ESA

12. Mission/AID/W Office Director Approval

Signature: James A. Graham for

Typed Name: John W. Koehring

Date: 19 March, 1984

AID 1330-1E (5-78)

ACRONYMS AND ABBREVIATIONS

CRO	-	Chief Research Officer
GAC	-	Grand Anse Agriculture Research Center
GOS	-	Government of Seychelles
IDC	-	Island Development Company
IG	-	Inspector General, U.S. Government
ISHS	-	International Society for Horticultural Scientists
MOA	-	Ministry of Agriculture
PACD	-	Project Agreement Completion Data
PC	-	Peace Corps
PCR	-	Project Completion Report
SADECO	-	Seychelles Agriculture Development Company
SECID	-	South-East Consortium for International Development

XD-AAP-147-A

662-0002

S E Y C H E L L E S

FOOD CROPS RESEARCH
(662-0002)

EVALUATION AND COMPLETION REPORT

MARCH, 1984

REDSO/ESA
U.S. Agency for International Development

FOOD CROPS RESEARCH
EVALUATION AND COMPLETION REPORT

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Evaluation Team

Timm Harris, Project Officer, REDSO/ESA
William Faught, Agriculturalist/Economist, REDSO/ESA

I. INTRODUCTION

This evaluation of the Food Crops Research Project (662-0002), hereafter called the Project, was done as a project completion report, a guide to AID involvement, and as a document to assist in future agriculture research efforts. The performance of AID, the Government of the Seychelles (GOS) and the contractor Southern-East Consortium for International Development (SECID), is reviewed from a broad perspective. The organization does not follow the Project Evaluation Summary (items 13-23), but contains all elements of such a summary. We have gone beyond that format, as a Project Completion Report and as a possible guide to further efforts in agriculture research.

Extensive time was spent in the Seychelles interviewing key personnel involved in the Project, visiting various sites, and reviewing the records of the Project, Research Center and government documents. It is hoped that this evaluation will be made available to senior individuals interviewed, including Project personnel and GOS officials.

II. SUMMARY

Although all elements applicable of the project evaluation summary are included in the following report, the "question" format is not considered appropriate. The executive summary (as per State (82) 81077) is shown as Appendix F. These summary formats are not individualized and certain items may be irrelevant to an analysis of the project. The evaluation team feels that the following summary is more appropriate for this project. Incidentally, it is assumed that the Project Paper has been read and the basic structure of the project is understood.

A. Background

1. Project Goal and Purpose - The Project goal was to increase local agriculture production and improve farm income. The Project purpose was to apply and adapt research to the Seychellois context, and deliver the resultsof applied research to the small famer for improved crop yeilds.

2. Organization and Personnel - Since design of the Food Crop Research Project, significant changes have taken place in the agriculture sector of the Seychelles. The Ministry of Agriculture was dissolved and replaced by the Department of

Agriculture Promotion, part of the Ministry of National Development. The Chief Research Officer is now head of Forestry, Livestock, Control, Services and Crops (Research) Divisions. There is no Chief Extension/Pest Control Officer, nor any Extension Division to speak of. There are numerous new state and parastatal firms. Over one-third of the agriculture labor force is employed by the Government of Seychelles (GOS).

Under the Project, certain technical assistance was to be supplied by the contractor, South-East Consortium for International Development (SECID). One hundred and twenty-one person months of assistance has been supplied as agreed, although the type of assistance has varied somewhat from that shown in the Project Paper. The GOS supplied personnel as agreed, although not for the life of the project (as originally intended, but not stated).

3. Research Activities - Numerous unverified horticultural trials have been held, without written results available. Plant diseases have been identified (over 50), with pathogens, and appropriate control methods tested. Many soil tests have been run and fertilizer trials performed. In 1983 the African Horticultural Symposium was held in Mahe, Seychelles, with many project sponsored participants and papers presented (some 17 nations represented).

4. Facilities and Equipment - Some two years behind schedule a plant and soils laboratory was established (in October, 1983). It is equipped to perform plant and soil analyses of various types and personnel have been trained to perform routine diagnostic tests. There is a limited library established, with basic research texts. Offices have been furnished and equipped for laboratory personnel.

5. Training Program - Intensive on-the-job training has been supplied to technicians and research personnel on a sporadic basis. Agriculture research officers (2) have received on-site training since October, 1983. Technicians have been given local training since project inception. Only 8 1/2 months of overseas training (to technicians) has been provided through the Project, out of a programmed 21 months training plan.

6. Financial Status - The Project was funded with a grant of $1,520,000 from Regional Activities, Africa. Total expenditures should reach an estimated $1,440,000 by the Project Assistance Completion Date of March 31, 1984, leaving residual funds of $80,000.

A schedule of events, showing major actions and personnel changes is given as Appendix B.

B. Strengths and Weaknesses

The Food Crops Research Project has made an impact on the agriculture sector in the Seychelles. Through the technical assistance support and on-the-job training efforts, a diagnostic soils and plant laboratory has been established, diseases and controls have been identified, soil management and fertilizer requirements have been established and certain vegetable varieties have been tested and introduced. Yet the legacy of the Project has not been a measurable increase in farmer income and production, nor has a self-sufficient research program been established.

1. Project Design - When the Project was initially designed, certain major assumptions were made. These included; a strong GOS extension system, permanent and qualified counterparts, Peace Corps participation, adherence to the implementation plan and a completed training program. None of these assumptions, although reasonable, have proved valid.

As a direct consequence, the Project has not been able to meet original goals and purposes. The lack of an appropriate time frame and a lack of GOS support were fatal to the achievement of project objectives. The time (and resources) required to meet those objectives were not provided under the Project, neither by the GOS or AID.

2. Organizational Framework - GOS priorities in the agriculture sector have changed since project inception. The emphasis has been away from research and extension and towards support and growth of the state and parastatal agriculture enterprises.

This is shown by the lack of support to the extension system, overburdening of the Chief Research Officer (CRO), removal of agriculture staff, and a late provision of project counterparts.

The contract personnel, with the exception of the horticulturalist, were of a high calibre and they performed their work very well, often in very trying circumstances. The horticulturalist did not perform research trials adequately and left almost no record of his research activities. All other SECID personnel, including the plant pathologists, soil scientists and entomologist, performed very well in activities suitable and beneficial to the Seychelles agriculture sector.

3. Research Areas - Although the goal of measurably increasing food production was unrealistic within the given life of the project, contributions were made through research activities. Numerous diseases (over 50) were identified and controls determined. Hundreds of soil samples were tested and nutrient recommendations for various plants were made.

The research activities, given available resources and personnel, that should be done cannot be carried out. There are no research staff currently available to work full time in the performance of trials. The technicians are not qualified to perform research activities without expert supervision. The means available for doing farm extension are inadequate to meet Seychellois needs. There are inadequate numbers of personnel, no real support structure and no GOS commitment to a complete extension service to farmers.

4. Facilities and Equipment - For the performance of adaptive research, such as soil tests, plant trials, disease resistance and vector control, the GAC has the basic infrastructure required. Some minor requirements, like additional transport and security, exist. The major problem is a lack of trained personnel to design, monitor and analyze these research activities. Only the CRO is qualified and this individual is totally burdened with administrative tasks.

5. Financial Performance - According to the audit, no disbursement anomalies have occurred. There may be a payment due from the GOS for equipment bought on their behalf, but the evaluation team was unable to investigate this. Undisbursed funds, by the PACD, should total around $80,000.

6. Project Impact - Measurable indications of project performance were not available, nor could they be meaningful in the short time frame (33 months) of the project. There were indications of farmer adaption of recommended practices and inputs which grew out of project activities.

C. Recommendations

The recommendations, to be used by the GOS and possibly for future AID activities, are presented as the bases for new ideas and approaches to problem resolution in the agriculture sector. They should not be viewed as blueprints for action, but as the evaluation team's perspective on problems and possible approaches to be considered.

1. Organizational Framework

a) The GOS should establish a Division of Extension in the Department of Agriculture Promotion and initiate efforts to staff the farmer extension unit with qualified personnel.

b) The research program should be institutionalized and the GOS, with donor support, should find qualified staff and train locals in its operation.

2. Research and Services

a) Recruitment and/or training of personnel in agriculture research specialities, both academically and at the technician level, is needed. It will be necessary to replace current personnel at some stage and this should be factored in.

b) A system of horticulture trials (regional, on farm, at GAC) should be reinstituted, using an indexing system which reports data collected, data collated, analyses, results and recommended actions. Recommended actions should be transmitted to farmers through the reestablished extension division.

c) The laboratory could use a micro-protein analyser, possibly purchased through local currency generations of the AID Commodity Import Program.

d) The SECID Plant Pathologist and local staff must complete the disease and control brochure prior to the PACD.

e) The SECID Soil Scientist and local staff must complete the soil management and fertilizer recommendation manual prior to the PACD.

f) The Dept. of Statistics should update the 1978 Agriculture Production and Income Survey.

3. AID and GOS

a) AID should consider, on the basis of a GOS work plan for continued laboratory assistance, continuation of limited assistance to the operation of the laboratory. This could be done by extending the PACD and a no-cost extension of the SECID technical assistance.

b) AID should not provide additional assistance to the Department of Agriculture Promotion until such time as a

functioning extension service is established and the Department is fully staffed.

III. PROJECT STATUS

This section is designed to provide a factual and statistical perspective on the Project. The assessment of quality of performance will be made in the following section (Perceptions and Problems). One difficulty has been the lack of agriculture production statistics in the Seychelles and the compilation of data and analysis of the trials done under the Project. Certain desirable statistics are just not available.

A basic assumption made is that readers have read the Project Paper and Project agreements and have a general knowledge of the activities to be carried out. Additionally, although there are eight weeks left before the PACD, this evaluation assumes that no major changes will occur before the Project is over. Therefore, this document can also be used as a Project Completion Report.

A. Goal and Purpose

The goal of the Project has been to increase production of vegetables and fruits in the Seychelles and concurrently to improve farmer income. Project purposes were "to take research efforts attained at other sites..... and adapt them to the specific agriculture conditions in Seychelles. The second step is applied research, which can also be undertaken at GAC. This involves taking the results of adaptive research and testing them in Seychelles until they are predictable, positive results (Sic.). The final step is to deliver the results of applied research to the small farmer and to assure that their successful extension actually results in improved crop yields."

The goal and purposes of the Project are stated somewhat differently in the agreements with the contractor (SECID) and the Government of the Seychelles (GOS), but the basic intent is consistent. The Project purposes in the Grant Agreement are stated more succinctly and are quoted in their entirety. "The purpose of this project, then, will be to assist the Grantee in its efforts to expand and strengthen its capability to (a) conduct applied and adaptive food crop research, (b) extend selected proven results of such research to smallholder farmers, and (c) protect the agriculture sector from the introduction of pests and diseases from abroad."

B. Organization and Personnel

Over the course of the Project (mid-1981 to beginning-1984) major changes have occurred in both the organization and personnel involved in the agriculture sector of the Seychelles. The Ministry of Agriculture has been dissolved and a Division of Agriculture Promotion has been formulated as part of the new (1982) Ministry of National Development. The Chief Research Officer of the old MOA is now the Director of the Department of Agriculture Promotion, as well as head of Forestry, Livestock, Control, Services, and Crops (Research). The Chief Extension/Pest Control Officer has left the Ministry and now works for the parastatal firm Seychelles Agriculture Development Company (SADECO). He has not been replaced. There are only two employees in Agriculture Extension. The Peace Corps is no longer involved in agriculture. Two agriculture officers (Research) have joined the Division (in October, 1983) and are now serving as counterparts to the contractor Soil Scientist and Plant Pathologist.

Additionally, the role of the state farms (four in number exluding IDC islands) and parastatals (six farms in number for SADECO), has increased considerably. Major allocation of resources and personnel from the GOS are involved in their operations. SADECO alone employs about 300 people full-time. State farms and "IDC islands" employ an estimated 450 people. The GAC employs about 130 full-time staff. This represents a labor force of nearly 900 people employed by the GOS in agriculture (SADECO is 100% owned by the the GOS). Additional labor working in agriculture is estimated by the Department of Statistics as totalling 1735 people. Therefore, roughly 33% of the agriculture labor force is employed by the GOS and SADECO. This figure does not include people who are gainfully employed in activities other than agriculture but who farm part-time, nor does it include people who have "backyard gardens."

Under the two agreements, certain staff were to be provided to the Project. The contractor, SECID, agreed to provide the following:

		AGREED	SUPPLIED
Long Term	- horticulturalist	36 ms.	29.5 ms.
	- plant pathologist	36 "	32 "
	- soil scientist	12 "	14 "
Short Term	- entomologist	6 "	6 "
	- soil scientist	2 "	-
	- consultants	6 "	1 "

Home Office- professional	20 "	23 "
- non-professional	12 "	15.5 "
	121 ms.	121 ms.

For the total number of work months, the agreed upon amount is met by the supplied amount, although the levels for the specialities are not equal.

The Republic of Seychelles agreed to supply (to the Project) counterparts for the horticulturalist and the plant pathologist and to supply two laboratory technicians. This has been complied with, but in an untimely manner (no timing was specified). There was no counterpart to the plant pathologist for one year. There are now counterparts to the plant pathologist and soil scientist, plus three laboratory technicians. The horticulturalist counterpart (C. Adam, Head of Agriculture Promotion) has not been doing any plant testing trials for over one year, and the pathologist and soil counterpart personnel have only been working since October, 1983.

C. Research Activities

Research activities of The Grand Anse Agriculture Research Centre (GAC) prior to initiation of the Food Crops Research Project were generally confined to a series of unreplicated variety and cultural practice trials or observations. The work was done, under the direction of the chief research officer, by a small number of technicians and field assistants with very limited training and experience in planning and implementing research programs or controlled experiments. The first efforts of the USAID Project team were focused on the development of plans for a research program to be approached in an orderly manner; improvement in experimental design to include appropriate replications and to provide for tests in a range of environmental conditions representative of the country; and on training of technicians and field assistants assigned to each research area.

Plans for the research program were incorporated in the implementation plan for the project. This plan, developed through the participation of all project scientists and in collaboration with the chief research officer of GAC, appears consistent with and is generally adequate for accomplishment of the purposes and objectives specified in the project agreement. However, the implementation plan gave little attention to training of extension personnel.

Other activities requiring joint participation of all project scientists include planning and conducting seminars for GAC and extension staffs and field days for farmers and extension workers. One seminar and two field days were reportedly held shortly after the project was initiated but no records of subsequent meetings could be located. The International Society for Horticulture Scientists (ISHS) Ninth Africa Symposium was held in Mahe, Seychelles in July 1983 with the participation of all project scientists. Representatives of seventeen countries participated. Nine papers reporting on results generated as a part of the project were presented by project scientists.

The scientists apparently consulted together in planning their individual experiments and often collaborated in their implementation. However, experiments in each subject matter area were the responsibility of, and developed by, the specialist in each area.

1. Horticulture

In accordance with responsibilities specified in the project agreement and implementation plan, the horticulturist (Dr. Wurster, 7/81-9/83) in cooperation with the GAC staff, arranged for the introduction and varietal testing of 100 vegetable variations from Taiwan, 51 potato lines from CIP/Kenya and a number of vegetable and tuber varieties from Florida, Hawaii and Puerto Rico. A number of local varieties were also included. A series of regional trials, developed with the collaboration of the soil scientists, were designed to measure the response of several vegetables to different types and amounts of fertilizer and the effect of varying planting dates. The experimental designs available indicated that adequate provisions had been made for obtaining significant, well documented results. Field assistants participated directly and fully in carrying out the trials and recording field data. The trials reportedly provided considerable useful information that was used in developing varietal recommendations for 39 types of vegetables. However, no record of the summarization or analysis of the results of either the GAC or regional trials could be located by the evaluation team. Another responsibility of the horticulturist was the development of an indexing system for recording all food crop variety trials and introductions. Work was initiated on trial indexing in 1982 and a modification of the system used at Muguga, Kenya, was adopted in early 1983. Information on the introduction of potatoes in 1983 was entered into the system but neither growth performance nor final disposition was

recorded. No other introduction or trial results appear to have been entered.

The horticulturist also had primary responsibility, in cooperation with others, to organize and conduct field days. These were designed to acquaint farmers and others with research results and demonstrations of improved farming practice, using tested seed varieties. Some field days reportedly were held and perhaps some of the varietal trials also served as demonstrations. However, no records of such activities are available.

2. Plant Protection

The Plant Pathologists (Dr. Kingsland in 1982 and Dr. Sitterly in 1983) cooperated with other team members and GAC staff in planning and establishing the plant pathology diagnostic laboratory. Although establishment of the permanent laboratory was considerably delayed by factors beyond their control, the laboratory is now complete, fully equipped and supplied and functioning effectively. Contacts were established with laboratories in the U.S. and U.K. and their assistance has been obtained in identifying pathogens that could not be identified in the Seychelles.

The Plant Pathologists and Entomologist (Dr. Shepard on three short-term visits) coordinated their field activities and developed an integrated program of disease and insect identification and control. Both conducted continuing surveys in different locations and seasons to determine the extent of damage being done by various pests and to identify causal agents. In addition to experiments to determine the relative effectiveness of alternative types of pesticides and means of application in controling pests, the team conducted a number of on-station and on-farm trials to identify resistant plant varieties, improved cultural practices and effective biological controls. The results of these experiments were well documented. On the basis of those results, an illustrated brochure identifying fifty economically significant diseases and recommending control measures has been prepared for use by extension workers and farmers. Guidelines for proper selection of fungicides have been provided. Several articles are to be published in professional journals reporting major aspects of the research and a number of articles have been published in the local newspaper advising farmers on plant pest problems and methods of control.

The Pathologists have provided on-job training to two technicians since initiation of the project and, since October 1983, to a newly arrived research officer who will be in charge of the diagnostic laboratory. Although not yet fully trained, the staff appears competent to continue portions of the present program on a restricted scale.

Drs. Kingsland and Shepard advised the Pest Control Officer during the short period of his tenure on extension activities and assisted him in revising the import control permit to increase effectiveness of control of plant introductions into the Seychelles. They participated in conducting a limited number of demonstrations, field days and seminars held during th early stages of the project. The nursery manager was trained in the production of disease free transplants.

3. Soil Scientists

The Soil Scientists' (Dr. Cochrane on three short-term assignments and Dr. Craddock since 9/83) first responsibility was to establish a soil analysis laboratory and to train staff in laboratory procedures. Dr. Cochrane, who joined the project in October 1981, made soil reconnaisance surveys and collected samples which were subjected to limited analyses with the equipment available at that time. Sixty-eight samples were sent to the U.S. for more complete analyses. Dr. Cochrane worked with other team members in planning a new permanent facility before his departure in February 1982. However, this facility did not become available until late 1983 (after the arrival of the second Soil Scientist). This new facility has adequate space and equipment for complete soil and related plant tissue analyses. The lab staff was strengthened in late 1983 by the addition of a technician and two research officers. With the laboratory fully functional, an intensive testing and training program was initiated. This included evaluation of several procedures to determine the one most suitable for analyzing the somewhat unique soils of the area. The preliminary evaluation has been completed but correlations of laboratory results of soil and related plant analyses with growth response of crops in field and potted plant trials will be continued (to refine interpretations of results). A manual detailing procedures for sample preparation and soil and plant material analyses is in draft form.

The second responsibility of the Soil Scientist(s) was to assist in surveying soil fertility levels in different locations on the main islands. The first soil scientist collaborated with the horticulturist in initiating the regional

vegetable variety trials and, although these trials apparently were not completed, soil samples were obtained and subsequently analyzed. Forty soil samples were taken from fields in Praslin and La Digue. These were analyzed and used in two fertility potted plant experiments, providing test values for correlation and final calibration. These experiments are continuing. A number of samples collected during farm visits or submitted by farmers have been tested and recommendations made on crop suitability and fertilizer requirements. Many of these tests were made when only limited analysis was possible, but approximately sixty samples were analyzed in December 1983, and January 1984, after the new facility was constructed. On the basis of the knowledge of the soils of the area obtained through these tests, Dr. Craddock developed a paper on the potential use of quano and other fertilizers which the GOS reported using in revising their fertilizer policy.

Dr. Cochrane provided on-job training for field assistants in collecting soil samples, sample preparation and use of the testing equipment then available. He has concentrated on training the expanded staff in testing procedures on the new laboratory equipment. Even though the period has been short, the local staff seems knowledgeable of the basic procedures and are carrying out soil tests with limited supervision. By the time the project is terminated, it is expected that they will be able to continue the diagnostic work, provide considerable guidance on fertilizer use, and perhaps be in a position to set up and conduct some field or potted plant trials necessary to confirm laboratory results. In the absence of an effective extension organization, transfer of information to farmers about soil deficiencies or means of overcoming problems with the soil has been generally limited to direct contacts when the Soil Scientists have been collecting samples or small farmers or operators of state farm facilities have initiated requests. A manual is being developed for use by farmers and extension workers that will present soil management and fertilizer recommendations for most crops grown on the principal soil types. The manual is scheduled to be completed before termination of the project.

4. Agricultural Economics

The project agreement did not provide for agricultural economic analysis. However, in discussions between REDSO/ESA and project staffs, it was agreed that the assistance of an agricultural economist was needed in evaluating alternative plant varieties and farming practices. REDSO/ESA obtained the services of Mr. R. Ginder to serve as a short term consultant

for the recommendation of procedures for calculating cost and returns of alternative measures or practices. In addition to detailing procedures, the agriculture economist's report made several recommendations or suggestions for incorporating economic analyses in future work on the project. However, since the project agreement did not specify such work or provide funds for it to be done, no follow up occurred.

D. Facilities and Equipment

Although original facilities were inadequate and construction of the new laboratory was long delayed, the present laboratory and office facility appears to be quite adequate to meet needs for the foreseeable future. However, a screen house facility at the laboratory site has not been completed.

Some of the equipment purchased prior to signing of the contract with SECID was reported to be unsuitable for the type and volume of work to be done. Equipment procured since that time is reported to be well suited to the needs and generally adequate to carry out the required analyses. The limited quantity of laboratory supplies and spare parts on hand is expected to meet requirements for the current calendar year. However, the need for some items, particularly spare parts, is difficult to predict and shortages may develop. If the shortages must be met from overseas sources, lengthy interruptions of the work could occur. Maintenance and repair of the equipment also is likely to be a problem. The staff will probably be able to replace parts of equipment that fail (if parts are available) and to repair most mechanical failures. However, they probably will not be able to repair failures in electronic elements and affected pieces of equipment will probably have to be returned to the USA for repair or replacement. In addition to the time required, problems in establishing contact with suppliers or of obtaining funds to cover the costs may occur.

A limited number of books and other reference materials have been secured. There are no subscriptions to professional journals. Also, the need for additional reference materials is likely to arise after departure of the contract scientists.

GAC reports the need for additional vehicles, partially because of the long periods of time required to repair existing vehicles. However, since meetings with farmers, which required transportation to and from GAC and FTC, have not been held for several months and there are no plans to renew these, the

original reason for providing vehicles no longer exists. The one vehicle which is being used by laboratory personnel, if retained for their use, should be adequate for their needs.

E. Training Program

The Project Design showed a total of 21 months of participant training, some 15 months of short-term U.S. training and six months overseas (non-U.S.). This is reflected in the P10/T as well, which provides an illustrative training list, showing the following.

U.S. - counterpart to plant pathologist, for 3 ms.
- three lab. technicians, in techniques, for 3 ms. each
- quarantine/pest control officer, for 3 ms.

3rd World - The CRO in horticulture, research methodology and site visits, for 3 ms.
- plant quarantive assistant, for 3 ms.

Under the Project, one lab assistant was provided with a study tour of 2.5 months. Two research assistants also went on the 2.5 month study tour in the U.S.A. The Research Station Farm Manager was sent on a study tour in the U.S.A. for one month in 1983.

During the Project period, when counterpart personnel were present, on-the-job training of a detailed, practical nature was done. Intensive training in laboratory operations and identification techiques have been provided to the agriculture officers (research) assigned as counterparts to the plant pathologist and soil scientist since October, 1983. Also training in lab techniques has been given to one agriculture technician.

F. Financial Status

Under the Grant Agreement with the GOS (662-0002) dated August 28, 1979, an amount of $450,000 was granted to the Republic of Seychelles. According to the Regional Financial Management Center (statement shown in Appendix D), this amount was increased by further obligations to a total of $1,520,000.

Under the contract with the South East Consortium for Internatioaal Development, $1,430,000 was obligated. As of September, 1983, the total of $939,752.68 had been expended. Two equipment purchases, showing obligations of $20,000 and $70,000, are also listed in the Project Ledger. Expenditures

on these equipment purchases are shown as $15,846.15 and $64,460.18 respectively. Therefore, under the contract and equipment purchases, $1,520,000 was obligated and $1,020,059 has been expended. Residual funds, as of September, 1983, total $499,941 (in a rounded sum). It is estimated that undisbursed funds will total approximately $80,000 at the PACD.

IV. PERCEPTIONS AND PROBLEMS

This section contains the qualitative assessment of the evaluation team on the performance of the GOS, the contractor and AID. Both strengths and weaknesses of the Project effort will be pointed out. Every effort is made to avoid any particular bias or to stress a perception from only one perspective. This evaluation is not written strictly for AID, but for the purpose of identifying areas of major benefits and ones needing improvement for the use of planners designing future agriculture research activities in the Seychelles and perhaps elsewhere.

A. Project Design

The Project Paper (design) made major assumptions that were not fulfilled. The assumptions included a strong GOS extension system, permanent and qualified counterparts to contract personnel, Peace Corps participation, timely facility construction, reasonable adherence to the implementation schedule, and a completed training program. Each of the above actions encountered significant problems. The assumptions themselves were reasonable, but compliance on the part of the Republic of Seychelles was generally late or accomplished to a degree less than expected. Following sections will delineate specific items, but very briefly they are:

a. The GOS extension program is nearly non-existent, with only two employees (one at the island of Praslins).

b. Qualified counterparts were supplied originally, but neither is currently working in the capacity intended. Two new people have been selected, but they are not qualified personnel, nor have they been working very long.

c. Peace Corps received no GOS request for volunteers in agriculture once the first volunteers completed services (1982).

d. Permanent laboratory facilities were not completed until October, 1983.

e. Timing on all events proved highly optimistic. Project personnel were not on site until 18 months after the planned date. First arrivals were in July, 1981, and all events could be said to have occurred at least one and one-half years later than scheduled.

f. The training program was not carried out and only 8.5 months of a planned 21 month program were done.

The weakness of the Project Design is rather fundamental. The length of time (and thus level of all inputs) for carrying out the objectives of the Project is totally unrealistic. The time frame was from mid-1981 to early 1984, less than three years. This is inadequate for carrying out trials on multiple crops, at various locations and in a variety of conditions. It doesn't allow time for demonstrations of proven agricultural practices, nor time to train extension personnel and to reach and influence farmers. The combination of an unrealistic time frame and the lack of support from the GOS was fatal to the achievement of Project objectives.

B. Organizational Framework

There has been a marked change on the part of the GOS in their priorities for the agriculture sector. Their increasing emphasis has been to provide support and growth to the parastatal and state agriculture enterprises. Numerous farms have been either purchased or expropriated. The reasons for these actions are complex and are closely tied with the GOS desire for increased agriculture production and the political/economic philosophy of the leadership of the nation.

In terms of the Project, the GOS perceives the extension service to private farmers as a low priority concern. It is felt by the GOS that the services given now, through the Research Station, the radio, and the newspaper are sufficient for national requirements. The laboratory and research efforts are not seen as high priority items either, where the lab is perceived of as a service center - not performing continued research. National preference emphasizes tourism, fisheries and service industries to a larger extent.

The Ministry of National Development includes the Department of Agriculture Promotion, but the Department does not have all the required personnel. The individual previously employed as the Chief Research Officer now has many other duties. These include head of Forestry, Livestock, Services, Crops and Control. This is another clear indication that the

Research sub-section is given lesser importance than in the past. The GAC Research Center itself more and more has been concentrating on services. These services, mainly provided to the state farms, SADECO and IDC, are concentrated on nursery operations - providing seedlings, cuttings and seeds.

On the side of personnel, the GOS has supplied counterparts, but has not allowed for full training in research. The laboratory itself will only be able to operate as a limited services center, without research capabilities. Existing staff are not well qualified to meet all needs or use all capabilities of the lab facility and equipment.

SECID personnel were not supplied as per the original schedule. Yet, with one exception, all personnel were of a high professional calibre, performed very well in sometimes trying circumstances, and were an asset to the progress that was made under the Project. The work of the two plant pathologists was relevant to the needs of the Seychelles. The amount and level of work was highly praiseworthy. Both individuals, as researchers and teachers, should be lauded for their efforts. Exemplary efforts were also made by the entomologist, as well as short-term soil scientists. The volume of work produced was very high, as was the quality and relevance of it. The one exception is the Chief of Party/ horticulturalist. The work as Chief of Party appears to have been satisfactory, yet there are major doubts about certain portions of the work done as horticulturalist. These will be expanded upon in Section IV.C.1., but briefly stated involve the records of performance of trials. No complete records or files have have been found. Work sheets and plans are found, yet no results, analyses or recommendations on the major task area of the horticulturalist were done.

C. Research Areas

The goal of increasing food production was unrealistic within the time frame established for the project. Agricultural production is characterized by great variation in yields from season to season and from one environment to another. Even to conduct the experiments at GAC and the on-farm trials necessary to provide "predictable, positive results" with acceptable levels of reliability, would require more than the three years allowed. Gaining farmer acceptance and adoption of research results on a broad enough scale to have a significant impact on production and income would normally require an even longer period of time. The time required for accomplishing each aspect would be increased by

the very limited number, training and experience of research and extension workers available to carry out the work.

The development of baseline data and continuation of the survey of households, which were expected to provide the basis for evaluating project impacts on production and incomes, was not accomplished. However, in view of the time normally required for research activities to be reflected in incomes, it is unlikely that such research activity impacts would have been revealed within 33 months.

Inspite of the time and personnel limitations and the probable failure to attain the overall goals, many of the specific purposes set for the project were attained. The adaptive and applied research program undertaken provided a considerable quantity of reasonably reliable information. This information provides practical solutions for a large number of problems confronting small farmers and other producers of food. However, additional information needs to be developed covering other crops, other geographical areas and other seasons.

The research facilities, developed as a part of the project (or in place when the project was initiated), are adequate for continuing and extending the research program underway. Problems are likely to develop in maintaining this level of adequacy due to difficulties of obtaining replacements or repair parts and the lack of technically trained personnel to repair or maintain some of the laboratory equipment.

The on-job and short term training has strengthened the diagnostic and technical capability of the GAC staff. They appear competent to continue the routine diagnostic plant pathology and soil and plant tissue analyses with which they have had experience. They may have difficulties if they encounter new types of disease or nutrient deficiencies. Also they will have difficulty in carrying out any field trials because of the limited number of personnel and the lack of experience in conducting such trials. If one of the staff leaves or is absent for an extended period, there is no replacement available and work would be delayed or halted.

Transfer of research results to small farmers has been severely restricted by the absence of an adequate extension service and the failure to continue field days at GAC. The manual and brochure being prepared by the project staff on plant pests and soil management problems will make the research information available in a useful form. Use of radio and the

local newspaper will make this information available to some farmers, but without extension agents to work directly with farmers on their individual farms and to assist them in carrying out problem solving activities, it is unlikely that the research results will be effectively or extensively applied.

Attainment of the anticipated end-of-project status is indicated by the following events.

1. Introduction of improved plant cultivars. Several hundred varieties of vegetables, tubers and other plant materials were introduced from a number of sources and tested at GAC or in farmers' fields. No records of the introductions, growth performance or disposition of these plant material are available. However, many of these plants were approved and made available to the public. Recommendations on a number of varieties of vegetables to be grown may reflect the results of trials of some of these introductions. However, with no records, some of the introductions that were rejected for poor performance may be included in some future introduction/testing program, since scientists working in the future will have no knowledge that the plant varieties had been tried and rejected previously.

2. GAC capability to determine soil nutrient requirements for various crops. The personnel trained and the laboratory equipment put in place as a part of the project activity do provide an adequate capability for performing the tests to determine nutrient requirements. Long-term continuation of this capability is questionalble because of the absence of any back-up, the absence of a technician to maintain or repair the equipment, and the potential problem of replacement parts and critical laboratory supplies.

3. Introduction of a pest management/plant protection system. The plant pathologists and entomologists have established the procedures and facilities for diagnosing pests involved, identifying causal pathogens or vectors, and prescribing chemical or biological control measures as appropriate. In this process, they have developed an extensive body of knowledge of local pests and means of control. They have also worked with the Pest Control Officer in further strengthening control of possible pest introductions from overseas. The system appears to have advanced well beyond the introductory phase.

4. Strengthened research linkages with international and other research organizations. Contacts have been expanded

through assistance from and joint work with laboratories in the US and UK; participant training at Clemson University and visits to neighboring universities; personal visits of the station manager with research personnel in Puerto Rico, Florida, California, Hawaii and Taiwan; correspondence with a large number of suppliers of new plant materials; and the symposium that brought together scientists with common interest from seventeen countries (which helped establish acquaintances and professional contacts).

5. Reinforcement of extension service by increased technical knowledge. Some technical knowledge is available in considerable volume and a form suitable for use by an extension service. However, the anticipated use of the audio-visual aids to demonstrate the increased knowledge in pests and soils cannot be accomplished because of curtailment of the audio-visual program. Also, the extension service is basically defunct. It is expected that it will be at least two years before suitable candidates for training for extension work will be available.

D. Facilities and Equipment

The facilities and equipment available for research activities are adequate for a sustained, moderate program. The land, laboratory, tools, vehicles and inputs needed are available. The major drawback is the lack of qualified personnel to design, monitor and analyze agriculture research efforts. Apart from minor problems (transport on occassion, space, security), the infrastructure for adaptive research is currently still in place.

E. Training and Education

The training required by various research staff, as envisioned in the Project agreements, has not been carried out. Overseas training exercises were not directed to particular tasks or skills, and may have been inappropriate and for the wrong people. Regardless of the appropriateness, the training program for overseas education was poor and much too limited. The skill areas suggested in the original agreements appear relevant and the time frame and locales suitable for local needs. Yet they were not carried out.

The reasons for non-compliance, given by the GOS, were; there were not sufficient personnel available to go and the few personnel that were present could not be spared from their duties. This seems unreasonable, since the personnel to be

trained were all staff at the time of the signing of the Grant Agreement. Whether or not the contractor made every effort to design attractive training programs and promoted them adequately to the GOS is not known. The net result was a heavy reliance being placed on the in-service or on the job training that was supplied by contract personnel.

The on-the-job training given to the two original counterparts (horticulturalist/CRO and pest control officer) is difficult to evaluate, as those Seychellois are no longer performing the counterpart tasks. In terms of the technical assistants (three) and the agricultural officers (Research, two in number), the on-the-job training appears to be excellent - appropriate, intense and geared to the skill level of the local personnel.

This on-the-job or in-service training will not be sufficient to enable local staff to continue all tasks now performed. The skill level that will be reached through the training should be adequate for the performance of routine identification of soil components and common plant diseases. There are significant doubts that all equipment can be maintained and that emergencies can be met, inspite of the high quality of in-service training. The skill level of local personnel is just not high enough to expect such a capability in the time available for training.

F. Financial Performance

It appears that, at the PACD, over $80,000 will not have been expended. The monies expended were utilized in accordance with the grant agreement and the contract with SECID. Only in the contract budget items "other Direct Costs" and "Materials and Supplies" were budget amounts exceeded (a total of roughly $48,000). All other line items show expenditures at levels less than amounts budgeted. A plan is proposed (under Recommendations, Section V.C) for the utilization of residual funds.

No problems were identified in the financial aspects of the Project. An audit was done in 1983 and no anomalies in disbursements were noted. One brief mention, though, was made by the SECID Project Coordinator, of expenditures made by the contractor on behalf of the GOS that had not been reimbursed by the GOS. This could not be verified, but should be investigated further. The amount mentioned was around $30,000.

G. Project Impact

The Project was expected to improve production and farm income in measurable amounts. Comparison of base-line data on production over the life of the Project (33 months) was to be carried out by the GOS. A farm production and income survey was done by the Department of Statistics in 1978, but has not been repeated since. The GOS maintains statistics on exports and imports, but not on local production. It is therefore impossible to measure impact of the Project in terms of production. Also, there is no clearly demonstrated link between research efforts and farming practices in the country. Seed types, as recommended by the GAC, are now more prevalent for certain vegetables. These seeds (and seedlings) were reportedly tested through trials and subsequently recommended to farmers. The performance of completed trials, as stated earlier, could not be verified. Yet it is apparent that the GAC has influenced the choice of vegetable varieties grown by farmers.

The selection of seed and plant types, recommended by the GAC and used by farmers, does show an influence of the research effort. Changes in use of various chemicals and methods of combating plant disease have also been made. New and better use of the soil, by fertilization and crop rotation, seems to be taking place. All these improvements have, to a great extent, been instigated by the Research Center and by the Project personnel.

Yet whether these changes have helped to increase production is not known. Even with accurate and well-kept data, further analyses would be required to determine what elements effected production. Such factors as weather, timing, amount of soil under cultivation, level of farm inputs, methodology, mix of crops, pricing structure, marketing forces, GOS policies, size of state owned and parastatal farms, etc... all influence the level of production. To link increases with only certain influences is a somewhat tenuous proposal. At any rate, the statistics available are scanty and do not indicate whether production is increasing or not. Such data will not be available until the GOS gives a higher priority to agriculture and provides the Department of Statistics with the mandate and wherewithal to do appropriate data collection, collation, and analysis.

V. CONCLUSIONS AND RECOMMENDATIONS

In this section the strengths and weaknesses (already identified) are analyzed and recommendations are made. These analyses and recommendations are presented with the hope that they can serve as both constructive criticism and bases for new ideas and approaches to agriculture research. They are addressed to both the GOS and AID, as well as any other group that might read this evaluation and be influenced by it. The section is subdivided into four major headings; Organizational Framework, Research and Service, AID and the Government of Seychelles, and Major Lessons To Learn.

A. Organizational Framework

For any agriculture research effort to succeed in helping to improve agricultural production and farmer income, a certain basic structure of the sector is essential. Farmers need knowledge of proper methodologies to use, they need access to required inputs, they need a supportive marketing system, and they need appropriate climatic conditions. The government can assist the farmer with helping to provide certain elements of this basic structure. The major role of an agriculture research program is to provide farmers with appropriate information on the methodology and input to use for increased production and income.

This research effort should be directed towards identified needs of the farmers. Such basic information as what to plant, where to plant it, when to plant, treat and harvest, as well as how to plant, maintain and harvest are questions a research program should be addressing. The research system must also be firmly linked with a program of effectively getting this information to the farmer.

The Seychelles research program has been initiating efforts in the identification of farming problems in the Seychelles. This identification has directed the major activities of the research program to date; choice of plant varieties most suitable, treatments for soils and plant diseases, and certain growing methods most suitable to local conditions. Considerable work remains to be done and efforts to continue the program should be made. Major problems arise because the personnel needed to carry out many research tasks is not currently available. The extension system for providing farmers with the required knowledge is inadequate for the Seychelles. A continuous, permanent system of farmer-oriented research and extension is essential to the progress of the

agriculture sector in the Seychelles. Such a system is not in place, and under the present structure such a system will not be established.

The key elements missing are the lack of sufficient numbers of qualified research and extension personnel and the lack of support for those personnel. It is recommended that the GOS establish an extension division of the Department of Agricultural Promotion and that efforts be initiated to recruit and train a large staff of dynamic personnel to operate the division. For the agricultural research effort, it is recommended that the GOS recruit and train scientists and technicians in the specialities of horticulture, soils, plant pathology, agricultural economics, nursery operations, and others that may become appropriate. It is inadequate to have only one person in key research positions and it appears at present there are no fully qualified individuals working full-time in the specialities mentioned (local horticulturalist and nursery manager are not working in those capacities full-time). If the GOS cannot locate Seychellois at present to fill these positions (or go into training), it is recommended that personnel from overseas be recruited in the interim while Seychellois are being located and trained.

The Department of Agricultural Promotion requires additional personnel as well (the Director has a portfolio of some five divisions), well trained and motivated to assist the agriculture sector. The Department needs the resources to support an expanded staff, with such items as supplies, transport, educational and promotional materials, and incentive plans. Overall, the GOS should give the agriculture sector a high position in the priority of governmental activities. As a sector in which nearly 3,000 people are employed full time (roughly 10% of the adult population), the GOS should consider agriculture as a most important activity and should provide the personnel and resources commensurate with that importance.

B. Research and Services

Although the Food Crops Research Project has been fairly successful in providing information and training in the areas of plant pathology, soils, diseases and some horticulture, the Seychellois research and service capabilities are inadequate for the needs of the nation. The AID Project has not left an established and on-going research program in place, nor are there trained personnel available to carry out such a research program. The Project has been unsuccessful in these regards because of the lack of resources, a very short time frame, and

a poor choice of horticulturalist. The following recommendations are therefore made to the Government of Seychelles, as possible approaches for the establishment of a meaningful, long-range agriculture research program.

To perform required research tasks, the Department of Agriculture Promotion (through the Research Division) needs qualified and experienced personnel. A program should be initiated by the GOS to train selected personnel. In the interim, the GOS should solicit donor support in the provision of expert research personnel to perform various trials, research activities, and training exercises. The GAC can not rely on the continued presence of the current staff. Besides the recommended additional research personnel, the Research program will need back-ups for current agriculture (research) officers and technicians. Individuals with potential should be selected and training initiated at this time.

The GAC should reinstitute a system of horticulture trials (regional on farm and at the Research Station), using an indexing system which shows data collected, data collation, analysis and results with recommended action.

The research results should be disseminated to farmers and efforts made to have the recommended actions applied. This will have to be done through the GOS reestablishment of an Agriculture Extension Division as an active organization staffed with qualified personnel. Staff should include a Pest Control Officer, Research Liaison Officer, Field Supervisor and numerous field officers working in specialized subject areas. Operational support will also be needed.

The Laboratory would be more complete with the inclusion of a micro-protein analyser. This apparatus would speed up soil and plant tissue analyses, increasing the lab's capacity to perform these tasks. The lab now has a macro-protein analyser, which is slow. The lab also requires additional library materials; texts and periodicals. The GAC should provide funds for additional reference materials and subscriptions.

The Plant Pathologist, working under the SECID contract, must complete the brochure of major diseases and control measures prior to departure. The Soil Scientist must complete the soil management and fertilizer recommendation manual, for the use of farmers, extension staff and the GAC. Completion on these publications are perhaps the highest priority items.

The Department of Statistics should be given the mandate and resources for the continuation of the 1978 Agriculture Production and Income Survey. Periodic updates are required which show farmer income, producton levels, farm size and ownership, product mix, etc....

C. AID and the Government of the Seychelles

Both AID and the GOS have not provided the resources needed to make current agriculture research efforts successful. AID has provided personnel and funding for a time frame (less than three years) that is not sufficient to accomplish the goals and purposes set out for the Project. The GOS has not supplied personnel or programmed for adequate training of personnel to fill all the requirements of research, extension and the Department of Agricultural Promotion.

Through the Food Crop Research Project, valuable knowledge has been gained in the areas of soil requirements, plant diseases and treatments, and routine plant pathology/soils lab activities. A laboratory has been set up and on-the-job training for lab personnel has been initiated.

The length of the time required to perform required plant trials was not provided under the Project. Sufficient time to train needed counterparts was not given, nor to train other personnel required for research efforts.

Evaluations of progress were not carried out by the contractor or AID. Such evaluations may have identified major shortcomings in the area of horticultural research and the training activities. AID, through the Project, has established a laboratory with equipment suitable for the performance of diagnostic tests on soils and plants. Such tests can provide information on diseases and soil deficiencies. This information can serve as the basis for determining control needs or fertilizer requirements. The personnel that will be operating the lab as of 3/31/84 will require continued support in performing tests on unidentified disease and soil problems, as well as with the repair and maintenance of sophisticated equipment. It is recommended that residual Project funds be utilized to provide short-term technical assistance support. Funding could also be provided through local currency generations of the AID Commodity Import Program. Support, most suitably provided by Drs. Craddock and Cochrane in soils and Drs. Kingsland and Sitterly in plant pathology, could consist of four one-month trips in support of lab and research

activities. Also further in-service training for agriculture research officers and lab technicians could be provided concurrently. Funds could be used to maintain and repair equipment and to purchase needed chemicals and reagents. Such continued assistance should be determined after the presentation of a GOS work plan for continued project assistance to the laboratory.

It is recommended that this assistance be provided by extending the current PACD and extending, on a no-cost increase basis, the SECID contract for a period of one year. It is further recommended that AID not provide further assistance to the Department of Agricultural Promotion until such time as a functioning extension service is established and the Department is fully staffed with trained or trainable personnel. At such time, AID should consider providing assistance to the agriculture sector. Such project assistance must have an implementation plan which allows sufficient time to carry out the designated activities.

D. Major Lessons To Learn

Through the mistakes made on this Project and some of the successes achieved, certain major lessons should be learned. These are grouped under the headings of AID administration, AID design, agriculture research, and host country environment.

1. AID Administration

a) Evaluations should be done, at a minimum, in the middle and near the end of a Project. This particular Project could have been improved by an in-depth mid-term evaluation that could have identified poor plant trial work.

b) Projects should have decision points at which it is decided to restructure, continue or curtail certain or all activities. Such a point can also be a time to adjust goals and objectives or reorder activities. For this Project, such a time could have shown the need to re-equate outputs and dilute the grandiose goals and objectives.

2. Aid Design

a) The Project should have been designed with a ten-year time frame, including extensive training for locals. If this was simply not possible, then activities should have been limited to the establishment of the lab, particular

disease control studies, soil studies and intensive local training.

b) The selection of equipment should have been done by the people that would have been using it, ie. contract expert personnel. Inappropriate commodities were purchased prematurely through AID/W.

c) When a project has good personnel, like the Project soils scientists, plant pathologists and entomologists, valuable work will be done. This may be despite a lack of resources, support or appropriate design. Good contract personnel are essential to success in a project. The design may be perfect, but without the personnel, the project will fail. Extra care then, should be taken with the selection of personnel. This selection should involve more than just a review of candidates resumes and publications.

3. Agriculture Research

a) Project assistance to an agriculture research program, when such a program is not firmly established, should have an extended time frame and implementation plan if basic research is to be carried out. Trials of new plant varieties take three or more years to carry out effectively. Dissemination of information can take equally as long. A seven-to-ten year time frame is not unreasonable in such a case.

b) Project assistance, through contract scientists and technicians, should be fully documented for verification and information. Tests and trials were not written up in some cases in this Project and valuable work, information, and time was lost. Full explanations and results of work performed should be mandatory of all Project personnel - even when the work was a failure.

c) Great specificity is required of the qualifications of project personnel and the equipment that is used. This specificity does not have to be done at the time of Project design, but should be done when needs are clearly identified.

4. Host Country Environment

a) Unless the local government is fully supportive of a project activity, with resources, personnel, facilities and public support, it is very difficult for an agricultural project to succeed. The diminuition of support by the GOS

since the Project Design (in 1979) certainly contributed to many of the problems the Project encountered.

b) An understanding of the goals, purposes and their relative importance by senior government officials is essential to progress in agriculture projects. This is especially true with agriculture research, where the benefits of a costly and time-consuming effort may not be readily apparent. Unless the importance, implications and long-range synergistic benefits of research are understood by senior government officials who can effect such programs, it is unlikely that the support needed will be forthcoming.

Appendix A

People Interviewed and Sites Visited

Mr. G. Payet	Principal Secretary, Ministry of National Development, GOS
Mr. D. Fischer	Ambassador, U.S. Embassy
Dr. G. Craddock	Soil Scientist and Project Leader, SECID
Dr. G. Kingsland	Plant Pathologist, SECID
Dr. E. Liner	Project Coordinator, SECID
Mr. C. Adam	Director of Agriculture Promotion Division, GOS
Mrs. J. Johnson	Agriculture Officer (Research), GOS
Mr. A. Moustache	Agriculture Officer (Research), GOS
Mr. R. Hoaran	Lab Technician, GOS
Mr. A. LaFortune	Lab Technician, GOS
Mr. J. Lalanne	Lab Technician, GOS
Mr. A. Yound	Director, SADECO
Mr. D. Mari	Farm Manager - Anse Aus Pins, SADECO
Mr. T. Chung	Farm Manager (Research), GOS
Mrs. K. Woodworth	Volunteer, Peace Corps
Mr. E. Dias	Senior Statistician, Dept. of Statistics, GOS
Mr. P. Crook	Agriculture Statistician, Dept. of Statistics, GOS
Mr. G. Delpeche	Farm Manager - Beau Vallon, SADECO

Sites Visited

Grand Anse Agriculture Research Station
SADECO Farm at Anse Chopin
SADECO Farm at Beau Vallon
numerous small private farms throughout Mahe

Appendix B

Schedule of Events

The following list points out major events which occurred during the course of the Food Crops Research Project. It follows actual dates and does not reflect the highly optimistic Project Paper Plan.

Project Identification Document approved	1/79
Project Paper approved	8/79
Grant Agreement signed	8/79
Contract with SECID (Contractor) signed	7/81
Contract Personnel arrived - horticulturalist and plant pathologists (Wurster and Kingsland)	7/81
Short-term (2 m.) visit of entomologist (Shepard)	8/81
Short-term (2 m.) visit of soil scientist (Cochrane)	10/81
Disruption because of mercenary attack	11/81
Short-term entomologist visit (Shepard)	6/82
Technicians sent for 10 wk. training course at Clemson	4/82
Agriculture Economicst visit made (Ginder)	5/82
Short-term entomologist visit (Shepard)	6/82
Disruption because of army coup attempt	7/82
Agriculture Economist visit made (Ginder)	10/82
MOA dissolved, Mininstry of National Development formed	11/82
Departure of Plant Pathologist (Kingsland)	12/82
Arrival of Plant Pathologist (Sitterly)	1/83
Audit Report by IG (Marr)	2/83
Lab construction started	3/83
Farm Manager of GAC (Chung) sent on study tour	6/83
Short-term entomologist visit (Shepard)	6/83
Symposium on African Horticulture	7/83
Short-term (2 m.) visit by soil scientist (Cochrane)	9/83
GAC Agriculture Officer (Research - Johnson & Moustache) start	9/83
Horticulturalist (Wurster) removal	9/83
Arrival of Soil Scientist/COP (Craddock)	9/83

Opening of Research Laboratory	10/83
Departure of Plant Pathologist (Sitterly)	1/84
Arrival of Plant Pathologist (Kingsland)	2/84
Evaluation & PCR performed (Harris and Faught)	2/84
Departure of Soil Scientist and Plant Pathologist (Craddock and Kingsland)	3/84

For further background information, the summary of quarterly reports submitted by contractor personnel can be helpful. This is shown in Appendix C.

Appendix C

SUMMARIES OF SECID CONTRACT
Personnel Quarterly Reports

A. Chief of Party/Horticulturalist - Dr. Wurster

Third Quarter, 1981 - 2 pages original

1. Organization of bi-weekly talks with extension and research staff

2. trials on bell peppers (capsicum) and mulching practices, with and without irrigation - no details

Fourth Quarter, 1981 - 2 pages

1. Proposal made on use of CIP (ESF) local currency generations - $2 million

2. work disruption reported because of SA mercenary attack

3. drafted project implementation plan

4. reports to have started "various vegetable variety trials".

First Quarter, 1982 - 7 pages

1. Submitted proposal for use of CIP (ESF) local currency generations in agriculture and in lab construction

2. announced departure of soils scientist (Cochrane)

3. reported on the improved production of vegetable seedlings

4. did an inspection of six vegetable trials on Proslins, unknown no. of varieties.

Second Quarter, 1982 - 4 pages

1. CIP agreement was signed

2. claimed lab construction was to start in 3-4 mo.

3. stated all lab equipment arrived "without any loss or damage"

4. 3 AID sponsored technicians sent to U.S. for 2.5 months

5. AID agriculture economist (R. Ginder on TSM) reported to have arrived, supposedly coincided with hiring of Seychellois agric. economist (not so, Ed.)

6. claims vegetable trials were continuing, no results announced

7. claims that some 100 new vegetable seed varieties were introduced, along with 30 potatoe varieties, for trials.

Third Quarter, 1982 - 2 pages

1. Announced departure of entomologist (Shepard), finishing second 2 month TDY

2. return of three technicians from 10 wk. Clemson course

3. GAC Pest Control Officer (A. Young) and COP/Horticulturalist (Wurster) attend a major horticulturalist conference in W. Germany, proposed Seychelles as site for 1983 Africa Horticulture meeting

4. reports start of trials on 100 vegetable varieties at GAC

5. disruption of work from army coup attempt, short-lived.

Fourth Quarter, 1982 - 7 pages

1. Ministry of Agriculture "eliminated", merged in Ministry of National Development, significant budget cut, 1.4% of total budget

2. reported that lab construction was delayed

3. plant pathologist departed (Kingsland), after 16m tour

4. listed new project proposals; a) soils and plant tissue analysis lab, b) modernization of GAC, c) capital equipment to improve extension, and d) supplements to AID funding of Project

5. mentioned agric. economist (Ginder) visit to do paper on economic constraints to production

6. seminar given by technicians on 10 wk. visit to Clemson

7. mentioned problems of bacterium X versicatoria on tomatoes with no known cure.

First Quarter, 1983 - 5 pages

1. announced arrival of Sitterly (plant pathologist) in January and visit by Project Coordinator (Liner) and Von Tungeln

2. had visit from auditor from IG (T. Marr)

3. listed 8 articles done by contractors for "Nation" newspaper

4. sent invitations for Horticulture Symposium to African states

5. mentioned a successful demonstration of drip irrigation "Submatic Kit H" at GAC

6. states that potato trials will soon start, several tons of seed ordered, also says soil samples from SADECO taken

7. states that lab construction had started

8. Agric. economist (Ginder) report on production costs submitted.

Second Quarter, 1983 - 7 pages

1. IG audit report submitted

2. reports lab construction started 3/83

3. states that potato trials to start with 22 varieties

4. provides detailed plan for sweet pepper "Pluto" trials to be done.

Third Quarter, 1983 - 1/2 page

1. states that symposium was held successfully

2. states that trials were held on sweet peppers, irish potatoes and various tomato varieties, no details provided

3. no mention of his (Wurster) departure.

B. Short-Term Soils Scientist - Dr. Cochrane

Fourth Quarter, 1981 - 25 pages

1. Discussed planning phase - the review of known soil info., visits to sites, discussions, and the overall implementation plan

2. ordered various kinds of equipment

3. reports to have assisted with unspecified vegetable trials and worked on some soil problems

4. stated readiness to do following reports; a)manual on soil management and fertilizer recommendations, b) regional soil fertility survey, and results of "large pot trials"

5. denigrates previous soil surveys as incomplete and partially incorrect

6. provides lengthy descriptions of soil types and characterstics (principally red earth soils and corraline or shioya soil)

7. makes general recommendations on soils - use drip irrigation, raise acidity level, set up lab

8. states that LaMotte soil quick tests are not effective

9. lists a series of reports on soil samples and problems done in quarter - twelve in total.

First Quarter, 1982 - 20 pages

1. Requested leave until 1983 to wait for lab construction and equipment arrival

2. did field work on soils survey, sent soil samples to Clemson

3. prepared a water balance sketch map and gave rain records

4. mentions mineral deficiencies in various plants

5. designed a uniform potting mixture for tests

6. pointed out major features of plan to integrate lab for both soils and plant pathology

7. included five different memos written on; a) potting mixture, b)ideas for lab use, c)plant samples from Bird Island, d) soil sample analyses from GAC, and e) location of various soil samples sent to Clemson.

Third Quarter, 1983 - 1/2 page (prepared by Craddock?)

1. States that Cochrane spent his time checking and unpacking equipment and reagents

2. stated that certain critical chemicals had not yet arrived

3. started some maize growth trials in pots on soil samples taken from Coetivy Island.

C. Soils Scientist/Chief of Party - Dr. Craddock

Third Quarter, 1983 - 1/2 page

1. Mentions maize pot trials were continuing

2. states that he was training agriculture officers (research) in "....analytical procedure instructions, process soil and plant material for analyses and to actually carry out analyses without supervision"

3. states most work was administrative (was there only 1 m. in quarter - Ed).

Fourth Quarter, 1983 - 4 pages

1. States that maize pot experiment was finished and fertilizer needs assessed, but new maize tests started on different soils

2. training of A. Moustache (Agric. officer - research) and one lab technician top effort, teaching ....." understanding methodology and carrying out lab procedures for soil testing and plant analyses"

3. collected many soil samples from Praslins Island and La Digue Island

5. in memo form was preparing a lab procedure manual for staff use.

D. Plant Pathologist Quarterly Reports - Dr. Kingsland

Third and Fourth Quarters (combined), 1981 - 24 pages

1. States that his work was done principally with A. Young (MOA Extension), G. Johnson (Peace Corps Volunteer) and G. Chetty (MOA Extension, Praslins)

2. perfomed disease surveys which identified eighteen different diseases and fifteen pathogens (three unidentified)

3. starting to determine plant losses from diseases, which can be very severe (100%)

4. working on developing programs for control of plant pathogens

5. training - on the job for lab technician (who?-Ed.) and with extension through meetings and visits to Farmers Training Centre, will prepare "fact sheets". He will also do demonstrations and have field visits (one done) and write newspaper articles (two done)

6. presented design for laboratory layout to Chief of Party (Wurster).

First Quarter, 1982 - 8 pages

1. Continued disease surveys from on farm visits, found some six diseases and six pathogens

2. did tests to verify four pathogens - two probable carriers, two unlikely

3. in work on controlling pathogens, identified non-resistant cabbage and potatoes. Also found effective and best cost nematicides for tomatoes - did tests

4. training - is providing on-the-job (OTJ) training for two "O Level" technicians in culture techniques, identification of some fungi, performance of trials

5. prepared four different "fact sheets".

Second Quarter, 1982 - 19 pages

1. identified ten diseases and pathogens from various fruits and vegetables

2. did proof tests on five pathogens, results positive

3. ten different fungi identified

4. on losses tests, showed one disease destroyed 12% of tomato plants. In another case 32% of tomatoes destroyed in one plot by myna birds

5. in disease control program found 2 tomato varieties resistant to tomato juane disease and was testing eight types of funcides on tomatoes

6. training - OTJ with A. Young (Pest Control Officer), Moareau and LaFortune (technicians)

7. communication of research results - prepared 45 slides on diseases, a report on diagnosis and recommendation completed, one newspaper article written, six memos on diseases (ident.) from various locations done.

Third Quarter, 1982 - 22 pages

1. Two diseases identified, no survey done

2. three more pathogens of specific diseases identified

3. control program - identified fungi on seeds from Guinea (destroyed them), discovered five tomato varieties very susceptible to TJD (tomato juane disease), is starting experiment with nematicides on tomato root knot nematode, and an experiment with tomato fungicides (this latter test

showed no appreciable difference with or without fungicide). Also is trying black plastic mulch over tomato beds to control root knot

4. training - continuing OTJ of technicians, sees no point in sending them overseas for training

5. communication research results - one article written, three memos on diseases to certain people, and has started manual on diseases.

Fourth Quarter, 1982 - 17 pages

1. Looked at three new diseases, were not identified nor were pathogens

2. on various fruits and vegs. five diseases and pathogens were identified

3. studied two possible new pathogens, one yes, other no

4. losses from disease - one plot of tomatoes lost 24% from wilt (fusarium) and at two others wilt losses were 100%

5. control program - tried tomato fungicides, no real results. Nematicides helped tomato yields slightly.

6. communication of research results - article on plant diseases submitted to journal, fifteen fact sheets for brochure written and two memos on specifc problems written to individuals.

E. Short-Term Entomologist - Dr. Shepard

Third Quarter, 1981 - 11 pages

1. Made an assessment of local insect control practices and the situation and types of insects

2. collected specimens for insect and mite survey

3. tried to find anthropod vector of certain tomato virus, but not successful

4. started study on biological control of diamond back moth (eats cabbage)

5. stated that both technicians (Hoareau and LaFortune) as well as Pest Control Officer (Young) needed further training.

Second Quarter, 1982 - 6 pages
(was in Seychelles one month)

1. Research a) insect and mite survery continuing

b) tomato virus disease serious, no known vector tried "white flies", but negative results

c) discussed fruit fly survey

d) biological control of diamond back moth, will introduce new parasites in 1983 - none currently in Seychelles.

Third Quarter, 1982 - 10 pages
(was in Seychelles one month)

1. Worked on same as second quarter, some more data on insect incidence, nothing new - included photos of best insect traps and cages.

Second Quarter, 1983 - 15 pages
(was in Seychelles two months)

1. tried insecticides against cabbage worms - all worked well

2. tested insecticides on diamond back moth, found electrodyn sprayer with thuricide and Ambush most effective

3. tried spraying suppression of med. fruit fly in areas of concentration, was effective but limited by rain. Best methods to spray with malathion, remove fallen fruit, and have baited traps

4. recommends periodic i[illegible]ct sampling before spraying to lessen costs

5. released parasites (three types) in two areas infested with diamond back moth, organized with Commonwealth Institute of Biological Control. Parasites were taking hold, but data collection necessary. Laid out scenario for introducing parasite, provided addr[illegible]ss for more.

F. Plant Pathologist Quarter Reports - Dr. Sitterly

First Quarter, 1983 - 5 pages

1. Identified eleven diseases and pathogens from various lacations (additional to Kingsland findings? - Ed.)

2. did a determination of disease impact at 3 locales

3. develop of programs for control - planned to determine resistant varieties of cucumber, tomatoes, eggplant (none known), study chemical controls - started plantings for testing, cultural control practices to be tried - deleafing, solar sterilization, improved cleanliness, transplanting, and also started nematode disease survey in fruit trees

4. training - continuing OTJ with technicians, also was training nursery manager (Chung) in production of disease - free transplants

5. prepared guidelines for production of disease - free veg transplants and use of fungicides and veg. disease info packet for FAO reps. and newspaper articles.

Second Quarter, 1983 - 4 pages

1. Identified 11 more diseases from various places

2. did a determination of disease impact at 3 locations

3. was able to determine two disease resistant varieties of eggplant and cabbage

4. tested Bravo 500 (fungicide) on tomato and cucumber, reasonable results

5. cultural control - found bell pepper leaf removal not effective, still trying solar sterilization

6. helped establish a nursery of vegetable transplants for sale to public

7. assisted in revision of GOS guidelines in plant importation

8. did many articles for "Nation", in column entitled Plant Health

9. initiated study of star fruit seed germination, collaborated on trials of bell pepper and various potatoes with horticulturalist (Wurster).

Third Quarter, 1983 - 9 pages

1. Identified 31 diseases at various locations on fruit and vegetables

2. did determination % of loss at one location from boron toxicity

3. tests on tomatoes showed three best resistant to virus and five to bacteria, found one cabbage variety resistant to downy mildew

4. more tomatoes tested with Bravo and Diplatan ± copper, above found to be good on pepper sand cucumbers against leafspot and fungus

5. black plastic mulch (solar sterilization) effective only against weeds

6. survey of fruit tree nematodes, 183 samples of seven fruits, showed guava and papaya effected

7. training - OJT of technicians, especially on new lab

8. did nematicide demo at one location, did set of slides for Polytechnic (High School), did paper at symposium, wrote newspaper articles

9. consulted with some growers on pruning and spraying

10. did an evaluation on vegetable transit and storage losses of vegetables and made recommendations.

Fourth Quarter, 1983 - 9 pages

1. Identified thirteen diseases and carriers from various locations

2. did resistant tests on seven tomato varieties and one dwarf cucumber

3. did some tests at Anse Aux Pins (SADECO farm) on nematodes, also did demsonstration on nematocides, fungicide seed treatment and treatment of eggplant leafspot

4. determined that tall plants as barrier to spread of cabbage rot not effective, but did slow down diamond back moth feeding

5. did two studies of disease etiology - on banana and tomato

6. continued OTJ of technicians, started training of agric. officer in research (J. Johnson)

7. made more disease slides, wrote newspaper articles, started (with Johnson) radio program

8. designed a plan for handling shipping of fresh produce

9. developed system and paper work for accompanying specimens from farmers to lab

10. tried to find local source selective media for "phytophtora" (?-Ed.), but failed

11. selected best sterilization procedures for isolating pathogens.

Appendix D

EXTENDED ASSISTANCE COST ESTIMATES

Assuming that short-term technical assistance can be provided and that both supplies and spares are procured for the time period, the following costs are projected. Residual Project funds only would be used (from the SECID contract) for aone year, no-cost extension contract.

Short-term Assignments

1.	Salary (four one-month assignment, including visits from a plant pathologist and a soils scientist)	$ 20,000
2.	Per Diem (four person months at a rate of $100 per day)	12,000
3.	Travel (four round-trip tickets to Seychelles from S. Carolina)	13,600
4.	Clemson overhead (16% on salary)	3,200
		48,800

Materials and Supplies

1.	Macro protein analyzer	3,000
2.	Miscellaneous spares and book	3,000
3.	Miscellaneous chemicals, reagents	9,000
		15,000
	SECID General and Adiminstrative (24%)	14,600
	Total Estimated Costs	$ 78,400*

* Projected SECID Contract residual funds not expended total $80,000. As the no-cost extension is for $78,400, there should be sufficient funds to carry out the additional activities

MACS FC1 USAID / SEYCHELLES RUN DATE : 2/29/84
REPORT OPTION : Q PROJECT LEDGER REPORT PAGE : 2343
PERIOD COVERED : 10/01/83 THRU 1/31/84 MISSION PAGE : 3

PROJECT NUMBER : 6620002.00
PROJECT TITLE : FOOD CROPS RESEARCH
START DATE : 8/01/79
COMPLETION DATE : 6/30/84
APPROPRIATION SYMBOL : 72-11M1021
BUDGET PLAN CODE : GDAA-79-21662-AG18
FUNCTION CATEGORY : FN

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	OBLIGATIONS	UNEARMARKED	EXPENDITURES
			CUMULATIVE BALANCES FORWARDED AS OF 10/01/83	>	>	> 450,000.00	.00	444,460.18
			TOTALS THIS PERIOD	>	>	> .00		.00
			CUMULATIVE BALANCE AS OF 1/31/84	>	>	> 450,000.00	.00	444,460.18

Best Available Document

ACS P01
REPORT OPTION : 0

USAID / SEYCHELLES
PROJECT LEDGER
PERIOD COVERED : 10/01/83 THRU 1/31/84

RUN DATE : 2/09/84
REPORT PAGE : 2347
MISSION PAGE : 4

PROJECT NUMBER : 6620002.00
BUDGET PLAN CODE : GDAA-79-21662-AG18
PROJECT TITLE : FOOD CROPS RESEARCH
ELEMENT NUMBER : 01
ELEMENT DESCRIPTION : TECHNICAL ASSISTANCE
PROJECT ELEMENT BUDGET TOTAL : 380,000.00

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	EARMARKED	EXPENDITURES
			CUMULATIVE BALANCE FORWARDED AS OF 10/01/83	> > > > > > >		380,000.00	380,000.00
			TOTALS THIS PERIOD	> > > > > > >		.00	.00
			CUMULATIVE BALANCES AS OF 1/31/84	> > > > > > >		380,000.00	380,000.00

Best Available Document

MAGS P01 USAID / SEYCHELLES RUN DATE : 2/09/84
REPORT OPTION : 0 PROJECT LEDGER REPORT PAGE : 2350
PERIOD COVERED : 10/01/83 THRU 1/31/84 MISSION PAGE : 5

PROJECT NUMBER : 6620002.00
BUDGET PLAN CODE : GDAA-79-21662-AG18
PROJECT TITLE : FOOD CROPS RESEARCH
ELEMENT NUMBER : 02
ELEMENT DESCRIPTION : EQUIPMENT
PROJECT ELEMENT BUDGET TOTAL : 70,000.00

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LOI	FY	EARMARKED	EXPENDITURES
			CUMULATIVE BALANCE FORWARDED AS OF 10/01/83	> > > > > > >		70,000.00	64,460.18
			TOTALS THIS PERIOD	> > > > > > >		.00	.00
			CUMULATIVE BALANCES AS OF 1/31/84	> > > > > > >		70,000.00	64,460.18

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ACS PC1
EPORT OPTION : 0

USAID / SEYCHELLES
PROJECT LEDGER
PERIOD COVERED : 10/01/83 THRU 1/31/84

RCJECT NUMBER : 6620002.00
ROJECT TITLE : FOOD CROPS RESEARCH
TART DATE : 8/01/79
OMPLETION DATE : 6/30/84
PPROPRIATION SYMBOL : 72-11M1021
UDGET PLAN CODE : GDAA-80-21662-AG18
UNCTION CATEGORY : FN

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	OBLIGATIONS	UNEARMARKED	EXPENDITURES
2/30/83	DF	PIOT-90001-A	AFR/0001-C-1032 SERVS JULY83					15,899.07
2/30/83	DF	PIOT-90001-A	AFR/0001-C-1032 SERVS AUG.83					70,015.69
1/27/84	DF	PIOT-90001-A	EXPENDITURES FOR JUNE 83					23,190.16
			CUMULATIVE BALANCES FORWARDED AS OF 10/01/83	>	>	570,000.00	.00	453,526.09
			TOTALS THIS PERIOD	>	>	.00		109,104.92
			CUMULATIVE BALANCE AS OF 1/31/84	>	>	570,000.00	.00	562,631.01

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MACS P01 USAID / SEYCHELLES RUN DATE : 2/09/84
REPORT OPTION : 0 PROJECT LEDGER REPORT PAGE : 2352
PERIOD COVERED : 10/01/83 THRU 1/31/84 MISSION PAGE : 7

PROJECT NUMBER : 6620002.00
BUDGET PLAN CODE : GDAA-80-21662-AG18
PROJECT TITLE : FOOD CROPS RESEARCH
ELEMENT NUMBER : 01
ELEMENT DESCRIPTION : TECHNICAL ASSISTANCE
PROJECT ELEMENT BUDGET TOTAL : 550,000.00

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	EARMARKED	EXPENDITURES
12/30/83	DF	PICT-20001-A	AFR/0001-C-1032 SERVS JULY83				15,399.37
12/30/83	DF	PICT-20001-A	AFR/0001-C-1032 SERVS AUG.83				70,015.69
1/27/84	DF	PICT-20001-A	EXPENDITURES FOR JUNE 83				23,190.16
			CUMULATIVE BALANCE FORWARDED AS OF 10/01/83	> > > > > > >		550,000.00	437,679.94
			TOTALS THIS PERIOD	> > > > > > >		.00	109,104.92
			CUMULATIVE BALANCES AS OF 1/31/84	> > > > > > >		550,000.00	546,784.86

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MACS PC1 USAID / SEYCHELLES RUN DATE : 2/09/84
REPORT OPTION : 0 PROJECT LEDGER REPORT PAGE : 2353
PERIOD COVERED : 10/01/83 THRU 1/31/84 MISSION PAGE : 6

PROJECT NUMBER : 6620002.00
BUDGET PLAN CODE : GDAA-83-21662-AG18
PROJECT TITLE : FOOD CROPS RESEARCH
ELEMENT NUMBER : 02
ELEMENT DESCRIPTION : EQUIPMENT
PROJECT ELEMENT BUDGET TOTAL : 20,000.00

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	EARMARKED	EXPENDITURES
			CUMULATIVE BALANCE FORWARDED AS OF 10/01/83	> > > > > > >		20,000.00	15,846.15
			TOTALS THIS PERIOD	> > > > > > >		.00	.00
			CUMULATIVE BALANCES AS OF 1/31/84	> > > > > > >		20,000.00	15,846.15

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MACS F01
REPORT OPTION : 0

USAID / SEYCHELLES
PROJECT LEDGER
PERIOD COVERED : 10/01/83 THRU 1/31/84

RUN DATE : 2/09/84
REPORT PAGE : 2354
MISSION PAGE : 9

PROJECT NUMBER : 6620002.00
PROJECT TITLE : FOOD CROPS RESEARCH
START DATE : 9/01/79
COMPLETION DATE : 6/30/84
APPROPRIATION SYMBOL : 72-11X1021
EXPENDITURE PLAN CODE : GDAA-81-21662-AG18
FUNCTION CATEGORY : FN

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	OBLIGATIONS	UNEARMARKED	EXPENDITURES
1/30/84	CP	PIOT-9C001-B	SEPT EXPENDITURES					12,967.32
			CUMULATIVE BALANCES FORWARDED AS OF 10/01/83	>	>	500,000.00	.00	.00
			TOTALS THIS PERIOD	>	>	.00		12,967.32
			CUMULATIVE BALANCE AS OF 1/31/84	>	>	500,000.00	.00	12,967.32

Best Available Document

MBCS P01 USAID / SEYCHELLES RUN DATE : 2/09/84
REPORT OPTION : C PROJECT LEDGER REPORT PAGE : 2355
PERIOD COVERED : 10/01/83 THRU 1/31/84 MISSION PAGE : 10

PROJECT NUMBER : 6620302.00
BUDGET PLAN CODE : GDAA-81-21662-AG18
PROJECT TITLE : FOOD CROPS RESEARCH
ELEMENT NUMBER : 01
ELEMENT DESCRIPTION : TECHNICAL ASSISTANCE
PROJECT ELEMENT BUDGET TOTAL : 500,000.00

TRANS DATE	TRAN TYPE	REFERENCE NUMBER	TRANSACTION DESCRIPTION	LCI	FY	EARMARKED	EXPENDITURES
1/30/84	CF	PIOT-90001-B	SEPT EXPENDITURES				12,967.32
			CUMULATIVE BALANCE FORWARDED AS OF 10/01/83	> > > > > > >		500,000.00	.00
			TOTALS THIS PERIOD	> > > > > > >		.00	12,967.32
			CUMULATIVE BALANCES AS OF 1/31/84	> > > > > > >		500,000.00	12,967.32

		OBLIGATIONS	EARMARKED	UNEARMARKED	EXPENDITURES
GRANT	TOTALS > > >	1,520,000.00	1,520,000.00	.00	1,020,059.01
LOAN	TOTALS > > >	.00	.00	.00	.00
PROJECT	TOTALS > > >	1,520,000.00	1,520,000.00	.00	1,020,059.01

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Standard Form 1035
SEPTEMBER 1973
4 TREASURY FRM 2000
1035-113

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

VOUCHER NO. 30
SCHEDULE NO.
SHEET NO. 1

CONTINUATION SHEET

DEPARTMENT, BUREAU, OR ESTABLISHMENT: AID

NUMBER AND DATE OF ORDER	DATE OF DELIVERY OR SERVICE	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary)	QUANTITY	UNIT PRICE COST	UNIT PRICE PER	AMOUNT
			BUDGET	Expenditures To Date		Expenditures This Period September 1983
		Salaries & Fringe	446,640.00	307,425.62		4,477.95
		Overhead	77,539.00	40,534.49		.00
		Travel	180,257.00	117,474.33		1,800.00
		Consultants	45,934.00	27,602.46		.00
		Materials/Supplies	100,570.00	88,634.38		426.84
		Allowances	183,866.00	109,204.89		628.60
		Procurement Inc. In Materials/Supplies	.00	9,927.22		1,316.21
		Participant Costs	61,329.00	19,634.06		.00
		Other Direct Costs	95,859.00	55,554.79		1,808.32
		SUBTOTAL	1,191,994.00	775,992.24		10,457.92
		G&A	238,006.00	163,760.44		2,509.90
		TOTAL	1,430,000.00	939,752.68		12,967.82

The undersigned hereby certifies: (A) That payment of the sum claimed under the cited contract is proper and due and that appropriate refund to AID will be made promptly upon request in the event of disallowance of costs not reimbursable under the terms of the contract, (B) That information on the fiscal report is correct and such detailed supporting information as AID may reasonably require will be furnished promptly to AID on request at the Contractor's home office or base office as appropriate and (C) That all requirements called for by the contract to the date of this certification have been met.

By [illegible]

Title Treasurer Date 11/8/83

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Treasurer

54

Appendix D

CONTRACT BUDGET VS. FORECASE & ACTUAL COSTS
SEYCHELLES: FOOD CROPS RESEARCH
1980-1984

CONTRACT LINE ITEMS	FY 80-81	FY 81-82	FY 82-83	FY 83-84	FORECAST & ACTUAL COSTS	CONTRACT BUDGET	SURPLUS (DEFICIT) VS. BUDGET
A. Salaries							
Domestic	$ 40,0390	$118,561	$ 13,845	$ 11,448	$340,431	$ 368,341	$ 27,910
International			102,767	53,771			
B. Fringe							
Domestic	7,639	27,030	2,547	1,974	64,875	78,299	13,424
International			16,846	8,839			
C. Overhead							
Domestic	8,295	18,461			76,676	77,539	863
International			897	2,556			
			20,300	26,167			
D. Consultants	8,806	10,592	14,052		33,450	45,934	12,484
E. Travel	24,546	64,052	44,386	17,680	150,664	180,257	29,593
F. Allowances	12.045	65,604	60,331	36,029	174,009	183,866	9,857
G. Other Direct Costs	25,687	14,941	70,480	7,998	119,106	95,859	(23,247)
H. Materials & Supplies	3,580	85,386	11,158	24,402	124,526	100,570	(23,956)
I. Participant Training	-	17,378	6,356	-	23,734	61,329	37,595
J. Total Direct Costs	$130,637	$422,005	$363,965	$190,864	$1,107,471	$1,191,994	$84,523
K. G&A	27,729	92,251	83,012	38,914	244,906	238,006	(3,900)
L. TOTAL ESTIMATED COSTS	$158,366	$514,256	$446,977	$229,778	$349,377	$1,430,000	$80,623

APPENDIX E

Date of Arrival	Lab Equipment	Weight	Price
10.29.81	Laboratory Sterilizers, incubators etc.	200 kg	SR 71,145.78
	Shaker table top, blender, vacumcleaner etc.	70 kg	71,169.98
	Voltage changer, recharger	10 kg	6,528.33
	Utility carrier	20 kg	516.20
	Vacum pump, oil pump	6 kg	6,467.57
	Belt	1 kg	103.73
	Cutting Mill	60 kg	7,649.15
	Laboratory Glassware, flask, Beakeri etc.	121 kg	12,047.58
	Rubber stopper	3 kg	596.72
	Filter cartridge, cen trifuge	20 kg	13,599.05
	Dem inefralizer tape water	16 kg	126.46
	Pan type cart	7 kg	4,523.79
	Volt OHM Milliameter, Temp, Recorder etc.	4 kg	15,692.00
	Ink	.5 kg	112.63
	Calculator	2[illegible] kg	11,887.43
	Thermal paper, stat Pac	962 kg	1,041.79
	First aid Cabinet, Bench	60 kg	22,699.49
	Apron	1 kg	551.27
	Goggles	2 kg	72.61
	Stopwatch	.5 kg	985.47
	Tongs, clamps	9 kg	1,364.35
	Time Switch	2 kg	1,295.69
	Polyehen Funnel	3 kg	154.12
	Brush (Plastic)	2 kg	160.05
	Supprt Ring	12 kg	1,440.42
	Burner	8.5 kg	324.54
	Burner Wicks	1 kg	30.63
	Gloves	3 kg	469.27
	Rubber Tubbing	30 kg	707.37
	Pencils	2 kg	126.46
	Test Tube Basket	4 kg	1,712.60
	Surgical Instruments, forceps	101 kg	2,802.30
	Gloves	1 kg	112.63
	Chromel wire	6 kg	42.43
	Agar	20 kg	1,952.18
	Sample Bag plastic	3 kg	3,195.01
	Scabe	4 kg	3,681.57
	Refrigerator W/Freezer	65 kg	21,029.37
	Corks	1 kg	SR 221.79

Date of Arrival	Lab Equipment	Weight	Price	TOTAL
3.4.82	3 boxes lab glassware		$ 7.49	
	3 Sieves		115.57	
	1 box of flasks		18.87	
	1 box tubing		50.23	
	1 box lab glassware		40.96	
	2 sets of Funnels		8.15	
	2 Dissecting Needles		15.60	
	2 Micro Dissecting Forceps		24.15	
	24 Ectin Ear Tags		36.00	
	48 Vapona Farm Strips		79.68	
	4 Flower pots		26.00	
	1 Flower Pot		13.05	
				435.75
	PCT-55-30 Thermocouple Psychrometer.Hygr.		119.70	
	PST-55-30 Thermocouple Psychrometer/Hygr.		119.70	
	C-52 Sample Chamber		543.00	
	L-51 Leaf Psychrometer/Hygrometer		191.00	
	L-44 Waterbath Leaf Chamber		120.00	
	HR-33T Dew Point Microvoltmeter		1,420.00	
	4000 Eveready 246 Battery		17.00	
	OM-210 Blow Clean Nozzle		35.00	
	SS-008 Blow Clean		7.80	
	OM-275 Allen Wrench (screwdriver handle)		3.25	
	OM-300 Forceps		6.50	
	SS-003 Cleaning Solution		3.90	
	SS-007 Sample Discs		15.30	
	SS-018 Supplies Kit		113.00	
	AC-015 Micropipettor		65.00	
	SS-024 Disposable Tips		96.00	
	SCD-1 Combination Diluter-dispenser		314.00	
	AD-3 Three Aliquot dispenser		340.00	
	MS-1 Multiple sample stirrer		540.00	
	DC-1 HD Dynacrush soil crusher, urethane		525.00	
	B-11 Bottle rack, styrofoam with 11 bottles		81.60	
	CT-2 Carrying tray for bottle racks		24.30	
	B-60 Bottles, 60 ml plastic		37.90	
	SF-1 Superflock 127		55.00	
	PVP Polyvinyl Pyrolidine K 30		36.00	
	GV-1 Glass Valve, weighted		201.25	
	SBB- Syringe barrel bracket for 2.5, 5, 10, 20 and 50		66.75	

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Date of Arrival	Lab Equipment	Weight	Price	Total
3.4.82	PS- Plastic syringe with anchor 2.5, 5, 10, 20, 50 ml		$ 57.00	
	CO-1 Sample changer for spectrophometer		49.00	
		447 lbs		
4.12.82	Turbulent Flow Emitters		22.50	
	Standard Take Apart Emitters		25.00	
	Submatic Emitters		22.50	
	Emitter Hole Plugs		30.00	
	Rolls of Black Plastic film - Monsanto 603 4 Mil. Thick Comm.0120		49.95	
	Rolls of Black Plastic Film Monsanto 604 4 Mil.		49.95	
		134 lbs		
6.4.82	New FMC Sprayer Model D003R 30 with sprayer Hand Gun 3 h.p. Briggs Engine	200 lbs	950.56	
9.3.82	Model 200 Atomic Spectrophometer 240 volt 50 cycle	130 kg	8478.50	
	Spares Kit SB 10032		325.00	
	Book-Atomic Absorption Spectroscopy SB 30500		60.00	
	Stainless steel exhaust hood with blower SB 30044		400.00	
11.11.82	Case of Petri Dishes		53.50	
	Dessicator 08-632		31.45	
	Pipet Filler 13-681-50		35.00	
	1/10 ml Pipette		12.64	
	1 ml Pipette		13.32	
	2 ml Pipette		13.48	
	5 ml Pipette		13.48	
	10 ml Pipette		15.56	
		45 kg		
11.19.82	18 Plastic Pots		72.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	
	36 Plastic Pots		144.00	

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Date of Arrival	OFFICE EQUIPMENT	Weight	Price	Total
2.3.83	Box of Clasp envelopes 10 x 15		16.00	
	Box of clasp envelopes 12 x 15½		20.00	
	Roll of Strapping Tape		4.70	
	Box of Typewriter ribbons		18.72	
	Box of Erase Ribbons		15.41	
9.21.83	Legal Pads		6.13	
	White Liquid Paper		6.18	
	Typewriter Ribbon		31.20	
	Typewriter Lift-off Tape		19.26	
	Denison Removable Labels		3.30	
	Packing Tape		9.00	
	SECID Pens		2.40	
	Large Clasp Manilla Envelopes		20.00	
	Small Clasp Manila Envelopes		16.00	
	Manila Folders	2.50 lbs	7.70	
	Paper cutter		36.25	
	HD Stapler Bates 300 HD		52.00	
	Calling Cards		22.00	
	Avery Address Labels		54.99	
	Letter Head Stationery		21.00	
	Staples ¼ inch - box		36.00	
	Staples ½ inch - box		36.00	
	Card Holder		10.00	
	File Pockets		25.00	
	Label Holders - red		3.00	
	Label Holders - yellow		3.00	
	Label Holders - blue		3.00	

some home office equip not here
& some local purchases.

Date of Arrival		Lab Equipment	Weight	Price	Total
2.3.83		Irrigation Kits by Submatic		287.50	
		Filters - Arkal Model 17-4600		66.00	
		Cartridges #40, 80, 120, 160		72.00	
		Minolta Camera w/lens		269.97	
		Box of Oil Well Bags		12.31	
		Black Plastic Film		25.40	
		Cable Assembly for copier		10.66	
		Diluter-Dispenser		314.00	
		Insect box		111.60	
9.21.83		One Soil bags, 36" 10 oz		54.94	
	100	Nursery Marking Pens - Extra fine		100.00	
		Book - Destructive & Useful insects, Their habits & Control		52.50	
		Book - Concepts of Pest Management		4.16	
		Book - Intro. to the Study of Insects		34.95	
		Book - Fundamentals of Applied Entomology		32.95	
		Book - Insect Ecology		29.95	
		Book - Intro. to Insect Pest Management		32.50	
		Book - Theory & Practice of Biological Control		83.00	
		Book - Insect Pest Management: Readings,		32.50	
		Book - Insect Pest Management & Control		13.25	
		Book - Biological Insect Pest Suppression		41.00	
			136 lbs		
12.14.83		Repaired Spectrophometer. Previously shipped to Sey. 3 September 1982.		8478.00	

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Date of Arrival	Lab Equipment	Weight	Price	Total
7/28	Insect Pin No. 0-pack		8.68	
	Insect Pin No. 1-pack		8.68	
	Insect Pin No. 2-pack		8.68	
	Insect Pin No. 3-pack		8.68	
	Insect Pin No. 4-pack		8.68	
	Pinning Forceps		14.88	
	Sweep Net		20.46	
	Beat Net		28.14	
	Beam Sprayer		914.00	
	Transformer		447.50	
	Long Distance Nozzle for Beam Sprayer		127.61	
	Series Probes		172.00	
	Pump Vac/Press		194.40	
	Dessicating Cabinet		243.36	
	Fluid Pump		206.64	
	Electronic Balance		1201.50	
	Distilled Water Still		823.68	
	NLC-4 Sub		225.60	
	Soil Test Kit's		431.00	
	Tubes		892.80	
	Filter paper		324.00	
	Still Pre-treatment Kit		190.80	

DATE OF ARRIVAL	CHEMICAL	WEIGHT	PRICE	TOTA
2.11.82	Ammonium Molybate (AR		27.73	
	Ammonium Nitrate (AR		57.60	
	Ferrous Sulphate		18.75	
	Manganese Sulphate		24.40	
	4 oz. Zinc Chloride (AR		30.76	
	Sodium Phosphate Dibasic		14.50	
	Sodium Phosphate 4 oz		59.00	
	Cupr Chl Dih 125 G 4 oz		53.46	
	Sulf Ar		20.70	
	Ferric Nitrate		11.35	
	Magnes Nitrate 500 G 1 lb		27.10	
	Mag Sul AR 500 G 1 lb		38.76	
	Maga Chlor 125 g. 4 oz		18.00	
	Potas Chl AR 500 G 1 lb		41.60	
	POTASS NIT CRYS AR 4 oz		73.80	
	POT SULFATE 500G 1 lb		41.66	
	SOD BORATE LG 500 G 1 lb		26.26	
	SOD NITRATE CRYS AR 4 oz		40.00	
	SOD PHO TRIB 12HH AR 1 lb		20.38	
	SOD SULFA ANHY 500 G 1 lb		9.38	
	SULFUR PRECIP 200G 1 lb		23.90	
	ZINC SULFATE 1 lb		15.13	
		46 lbs	$1,021.	
2.10.82	Ammonium Nitrate UN1942	4x1 lb		
	Ferric Nitrate UN1466	4x½ lb		
	Magnesium Nitrate UN1474	2x1 lb		
	Potassium Nitrate UN1486	6x½ lb		
	Sodium Nitrate UN1498	4x½ lb		
4.19.82	Heptane	8 lbs	$128.14	
5.5.82	Ammonium hydroxide	3 lbs		
	ORM Group A, N.O.S. (Oxalic acid solid) NA 1693	3 lbs		
	Silver Nitrate, Oxidizer	1 lb		
	Sodium hydrogen sulfate solution, Corrosive material	3 lb		
	Poisonus solid, Class B (contains barium acetate(	3 lb		
	Potassium hydroxide dry solid	2 lbs		

DATE OF ARRIVAL	CHEMICAL	WT	PRICE	TOTAL
5.5.82	Mercury Metallic, ORM B NA 2809	1 lb		
	Formaldehyde solution, ORM A UN# 2209	8 lb		
	Ammonium Fluoride ORM B	2 lb		
	Stannous chloride solid ORM B	2 lb		
	Antimony potassium tartrate, solid ORM A	2 lb		
				$ 3,637.0(
8.10.82	Ethyl Alcohol, Flammable Liquid, UN# 1170	72 lbs		
	Mercury Metallic, ORM B, NA 2809	2 lbs		
	Alcohol N.O.S. Flammable Liquid UN#1987	14 lbs		
	Hydrochloric Acid, Corrosive Material UN#1789	5 lbs		
	Phosphoric Acid Solution Corrosive Material UN#1805	14 lbs		
	Thioglycolic acid, Corrosive Material, UN# 1940	6 lbs		
2.3.83	Barium Chloride Comm. 0107	2 kilo	$ 85.51	
	Magnesium oxide Comm. 0108	2 kilo	$717.68	
	Irrigation kits by Submatic	2 kilo	$287.50	
5.23.83	DD Nematocide	1 gallon	$ 13.00	
	Insecticide	3 bottles		
	2 Phosphorus Reagent 5157-J		$ 4.20	
	10 Univ. Extracting Solution, 5173-K		$ 29.50	
	3 Phosphorus Ext. Solution 6228-1		$ 18.45	
9.22.83	Ammonium Bi	2500 gms		
	Diethylene	100 gms		
	Dihydro.	100 gms		
	Antimonium	500 gms		
	Bromocresol	25 gms		
	Methyl Red	25 gms		
	Phenol Phlhal.	25 gms		
	Methyl Orange	25 gms		
	Curcumin	10 gms		
	Lithuim Chloride	500 gms		
	Lithium Hydroxide	500 gms		
	Manganese Ref.	500 mls		
	Molybdenun Ref.	500 mls		

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9.22.83	Darco-G-60 Active (phosphate free)	4x500 gms	
	Napthalene disulfonic acid disodium salt		$676.75
10.3.83	Ferrous		
	Hydro		
	Hydro		
	Potassium		
	Sodium		
	Sodium		
	Sodium		
	Sodium		
	Sulphuric		
	Sulphuric		
	Sulphuric		
	Sulphuric		
	Hydrochloric		
	Hydro		
	Acetic		
	Hydro		
	Sulphuric		
	Ammonium		
	Sodium		
	Lithium		
	Calcium		
	Mercuric		
	Ethanol		
	Ethanol		
	Aluminon		
	Potassium		
	Iron Filing		
	Devardas		
	Sulphamic		
	Potassium		
	Sodium		
	Carbon		
	Aluminon		
	Selenium		
	Lead Acetate		
	Lanolin		

10.3.83	Selica Gel Ammonium Aurin Beeswax Yellow	403 lbs		$ 5,003.19
3/10	N-Heptune	2 kilos	78.27	

QYT.	NAME	MAKE AND MODEL	COST (DLRS)
1	HEADBOARD	LEVITZ B514-456	
1	TRIPLE DRESSER	LEVITZ B514-250	
2	TWIN MIRRORS	LEVITZ B514-230	
2	NIGHT STANDS	LEVITZ B514-810	539.00 TOTAL
1	FIVE DRAWER CHEST	LEVITX B514-320	219.00
1 RTW	FREEZER	SEARS 47W-31205N	499.95
1 RTW	REFRIGERATOR	SEARS 46F-61710	469.95
1 RTW	REFRIGERATOR	SEARS 46F-61761	649.95
2 RTW STORABLE	ELECTRIC RANGES	SEARS 22P-5260N	319.95/EA
1 RTW	AUTOMATIC WASHER	SEARS 26F-21701N	319.95
1 RTW	ELECTRIC DRYER	SEARS 26F-61601N	229.95
1 WS ?	COMPACT WASHER	SEARS 26P-42901N	299.95
1 WS ?	COMPACT DRYER	SEARS 26P-80901N	199.95
4 3 RTW 1 Gyshop	AIR CONDITIONERS	SEARS 47A-7459N	478.95/EA
2 RTW	BEDFRAMES single	SEARS 1P-74802L	19.99/EA
1 RTW	BEDFRAME queen	SEARS 1P-74803L	35.99
2 RTW	TWIN SLEEP SETS	SEARS 1P-7692N	209.98/EA
1	King Headboard Rtw		
1	SERVING BASE CBNT	BUCCI N SONS 3072-350	
1	TABLE W/1 LEAF	BUCCI N SONS 3072-430	
2 GCI	ARMCHAIRS	BUCCI N SONS 3072-450	
4 2 RTW	SIDE CHAIRS	BUCCI N SONS 3072-451	849.00 TOTAL
1	9 X 12 CARPET	NORMANDY BEACH SAND	
1	15 X 12 CARPET	NORMANDY BEACH SAND	
2	9 X 16 CARPETS	BRITTANY VANILLA CREAM	
2	9 X 12 CARPETS	IRONSIDE SAND DUNES	
1	9 X 12 CARPET	WALL ST. WILLOW	
2	15 X 12 CARPETS	WALL ST. WILLOW	
2	6 X 9 CARPETS	WALL ST. WILLOW	
1	9 X 12 CARPET	WALL ST. FIESTA ORANGE	2,250.00 TOTAL

1	BOOKCASE UNIT	BODCO LTD.	
1	DINING TABLE		193.00
6	DINING CHAIRS		471.00
1	TELEPHONE TABLE		478.00
1	WRITING DESK		209.00
1	LONG COFFEE TABLE		451.00
2	TILED OCCASIONAL TABLES		157.00
1	GLASS TOP FOR DESK		245.00
1	NYLEX CASUARINA LOW SOFA	BODCO LTD	117.00
2	NYLEX CASUARINA LOW CHAIRS		206.00
1	NYLEX CASUARINA LOW COFFEE TABLE		243.00
1	NYLEX CASUARINA SQUARE TABLE		269.00
1	NYLEX CASUARINA RECLINING LOUNGER		146.00
1	DOUBLE BED WITH HEADBOARD		196.00
1	DOUBLE MATTRESS		225.00
3	SINGLE BEDS W/HEADBOARDS		177.00
3	SINGLE MATTRESSES		556.00
5	BEDSIDE TABLES		399.00
3	DRESSING TABLE STOOLS		382.00
2	WALL MIRRORS		181.00
3	CHESTS OF DRAWERS		92.00
1	TABLE		797.00
1			193.00

Date:

TO: Collector of Customs,
P. O. Box 400,
New Port.

CUSTOMS DUTY EXEMPTION

This is to certify that the under listed goods expected to arrive in seychelles per vessel/aircraft .....

on or about July 1982 ..... from (name of supplier and port of shipment) KOBE MUTUAL TRADING COMPANY

consigned to (name of importer) ALLIED AGENCIES LIMITED P.O. BOX 345, VICTORIA, MAHE

are for the official use of the Ministry/Department AGRICULTURE MOA/USAID CONTRACT

LISTS OF GOODS

QUANTITY	ITEMS	VALUE
1	TOYOTA HI LUX, 4 WHEEL-DRIVE PICK-UP	SR 57,000

It is understood that if any of the above mentioned goods should be sold to the private sector, customs duty will become payable.

(Signed) .....

Authorized signatory for and on behalf of the Ministry/Department .....

Appendix F

Summary as per State (82) 81077

1. What constraints did this project attempt to overcome and who does it constrain?

The Food Crops Research Project's goals were to increase production and increase farmer income. This was to be achieved through adaptive agriculture research and extension and also through protection of the environment from foreign pests and diseases. The major constraints were a lack of trained personnel in research and extension, a lack of understanding of the benefits and impact of agriculture research, and a shortage of base-line data on the agriculture sector of the Seychelles.

2. What technology did the Project promote to relieve this constraint?

The major method was to have been training programs for selected personnel, both overseas and on-the-job in nature. The training was in research areas such as plant pathology, soils science, and horticulture. The level of education was to be commensurate with the capabilities of local personnel and the requirements of the Seychelles agriculture sector.

3. What technology did the Project attempt to replace?

The research activities were to supplement on-going research activities (seed, variety trials) and expand those activities to include more trials and investigations of pests, diseases and soil conditions. The testing activities were designed to study growing practices and recommend most appropriate methodologies which would maximize farmer production and income. This could necessitate changes in traditional agricultural practices.

4. Why did project planners believe that intended beneficiaries would adopt the proposed technology?

Certain research technology and methods were accepted by the Seychellois when the Project agreement was signed. The Government of Seychelles (GOS) wanted the technology implied by accepting the Project Agreement. It was felt that farmers would accept new inputs and methods if it was clearly demonstrated that these would in turn improve production and income. This feeling, not truly backed up by example or proof,

was predicated on the assumption that farmers were willing to change their practices in order to gain greater wealth (a not unreasonable assumption).

5. What characteristics did intended beneficiaries exhibit that had relevance to their adopting the proposed technology?

Since no pro forma demonstration of farmer acceptance of change is known, it is not possible to answer the question for the period prior to the Project. It should be remembered that the Project concentrated on agricultural research, not on extension work. Yet the acceptance of certain new inputs, linked to research recommendations, was an indication of farmer receptivity. Certain plant varieties, fertilizers and disease control chemicals have been introduced and accepted, all of which can be linked to recommendations of the agriculture research center.

6. What adoption rate did this Project achieve in transfering the proposed technology?

In terms of horticulture research activities, major changes were not made. The expansion of analyses to include plant pathology and soils was a major alteration. The new diagnostic lab for soils and plants and its full use is a clear indication of adoption. In terms of farmer adoption of new methods and inputs, no data is available. It is known, though, that new inputs are bought by farmers and presumably used (sales levels are not known). The produce sold by farmers, at least for tomatoes, eggplants and cabbages, are varieties recommended by the research center on the basis of trials and tests.

7. Did the Project set in motion forces that induced further exploration in research and extension and more improvements?

No. The Project was not successful in creating a desire locally for further growth and education. The GOS does seem interested in expanding the extension system, but this has not yet been done. The GOS does not give agriculture research the priority or attention that will allow research to continue to any great extent.

8. Do private input suppliers have an incentive to examine the constraints addressed by the Project?

The major constraint, as stated earlier, was and is the lack of trained personnel to operate the research and extension program. The question is somewhat irrelevant. The supply of trained personnel, to a large extent, is determined by the GOS and education system. Neither is geared to supply trained personnel, nor has the GOS created positions in all the research and extension areas that require staff.

9. What delivery system did the Project employ to transfer technology to intended beneficiaries?

The Project did not, nor was it intended to, deliver technology directly to the farmers. This was a weakness of the Project, as research and extension linkages were very nebulous. The transfer of research technology was to be done through training and supply of certain equipment. Equipment was supplied, yet the training activities did not take place which were required to localize research capabilities. The Project did not have an appropriate time frame for the work. Only 33 months were provided for tasks that require seven to ten years. The GOS did not supply personnel to be trained in the required research skills.

10. What training techniques did the Project use to develop the delivery system?

As stated earlier, training was on-the-job for the most part, with some short-term overseas assignments for key research personnel. The overseas training was not particularly successful, as low level personnel participated in limited numbers and the training was not always appropriate. Key personnel were not permitted to go for training. Long-term degree training was required, but the short time frame of the Project precluded this.

These series of questions do not address many major project concerns. It is felt by the evaluation team that the PES summary questions are more relevant and broader in scope. In the future, this specific list will <u>not</u> be included, although pertinent questions will be incorporated into sections of the evaluation.

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