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UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D. C. 20523

ROCAP
PROJECT PAPER
SMALL FARM PRODUCTION SYSTEMS
(AMENDMENT)

IAC/DR: 79/1

Project Number: 596-0083

UNCLASSIFIED

PROJECT DATA SHEET

1. TRANSACTION CODE

A = Add
 C = Change
 D = Delete

Amendment Number
1

DOCUMENT CODE
3

2. COUNTRY/ENTITY

ROCAP

3. PROJECT NUMBER

596-0083

4. BUREAU/OFFICE

Latin America and the Caribbean

05

5. PROJECT TITLE (maximum 40 characters)

Small Farm Production Systems

6. PROJECT ASSISTANCE COMPLETION DATE (PACD)

MM DD YY
06 30 85

7. ESTIMATED DATE OF OBLIGATION
 (Under "R:" below, enter 1, 2, 3, or 4)

A. Initial FY 79 B. Quarter 3 C. Final FY 83

8. COSTS (\$000 OR EQUIVALENT \$1 =)

A. FUNDING SOURCE	RHSYX ORIGINAL			LIFE OF PROJECT		
	B. FX	C. L/C	D. Total	E. FX	F. L/C	G. Total
All Appropriated Total	4,374	3,029	7,403	4,674	3,326	8,000
(Grant)	(4,374)	(3,029)	(7,403)	(4,674)	(3,326)	(8,000)
(Loan)	()	()	()	()	()	()
Other U.S.						
1. CATIE	1,465	1,471	2,936	1,765	1,835	3,600
Host Countries	-	7,805	7,805	-	8,100	8,100
Other Donor(s)	2,114	279	2,393	2,114	279	2,393
TOTALS	7,953	12,584	20,537	7,553	13,540	21,093

9. SCHEDULE OF AID FUNDING (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE		D. OBLIGATIONS TO DATE		E. AMOUNT APPROVED THIS ACTION		F. LIFE OF PROJECT	
		1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan	1. Grant	2. Loan
		(1) EN	211	023		5,855		1,600	
(2)									
(3)									
(4)									
TOTALS				5,855		1,600		8,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code

B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To develop a continuing Central American Expertise to conduct and convey small farmer crop, animal and mixed farming production systems research.

14. SCHEDULED EVALUATIONS

Interim MM YY MM YY Final MM YY
03 85

15. SOURCE/PORTION OF GOODS AND SERVICES

000 941 Local Other (Specify) CAP

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a 24 page PP Amendment.)

17. APPROVED BY

Signature Paul A. Montem
 Title Director, ROCAP

Date Signed June 22, 1983
 MM DD YY

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

PROJECT AUTHORIZATION AMENDMENT No. 1

Name of Entity : Tropical Agricultural Research and
Training Center

Name of Project : Small Farm Production Systems

Number of Project: 596-0083

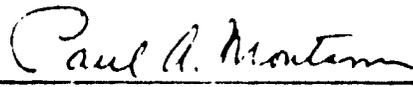
Date of Original Authorization: February 13, 1979

Pursuant to the authorities delegated to me, including the specific delegation in 83 STATE 143654, I hereby authorize an amendment to the project authorization as follows:

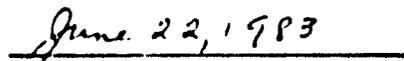
1. The life of project funding authorized in the second paragraph of the original authorization is increased from "Seven Million Four Hundred Three Thousand United States Dollars (\$7,403,000)" to "Eight Million United States Dollars (\$8,000,000)".
2. A new paragraph is added to the end of the authorization which provides:

"The Project Assistance Completion Date for the Project is June 30, 1985, or such other date as may be determined consistent with AID regulations and Delegations of Authority".

Except as amended hereby, the original authorization shall remain in full force and effect.



Paul A. Montavon
Director, ROCAP



Date

**SMALL FARM PRODUCTION SYSTEMS
PP AMENDMENT**

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I. SUMMARY AND RECOMMENDATION

A. Recommendation

The Project Committee has carefully reviewed the implementation status of the Small Farm Production Systems (SFPS) project and has determined that additional time and financial resources are required to complete planned activities with the highest level of scientific integrity as well as to assure that the results and recommendations, once widely introduced at the farm level by the appropriate national institutions, will lead to increased small farmer productivity. Specifically, the Committee recommends that:

- The Project Activity Completion Date (PACD) be extended by 21 months to June 30, 1985.
- The life of project grant funding be increased by \$597,000 to a new total of \$8.0 million.

B. Summary of the Proposed Extension

The SFPS project is being implemented by CATIE at research sites located throughout Central America and at CATIE's headquarters in Costa Rica.

There are four primary components of the project, each of which will be active during the extension period:

-- Farming Systems Research (FSR): Three different systems are being examined under this component: crops, animals, and mixed (crop-animal). Research on crops is almost complete, while the animal and mixed systems are lagging due to slow start-up of research activities, as well as the longer production cycle of animals and the corresponding need for additional time to complete the research. Consequently, most research activities during the extension period will be on the animal and mixed systems. This component also includes the on farm validation of each system (i.e., demonstrating that the technologies developed are workable in a small farm setting).

-- Transfer: Mechanisms for transferring the systems methodologies (tech packs) to the small farmer via host country agencies are being developed under this component. An important element of the component is training of host country personnel in the use of the transfer mechanisms. Progress is

closely tied to the availability of research results and recommended tech packs under the FSR. To date, therefore, most efforts have focused on the cropping systems, but will turn to the animal and mixed systems during the extension period.

-- Extrapolation: Activities under this component are limited to the cropping systems. A methodology has been developed for the introduction of a system into an analogous area without the need for prolonged site specific research. Preliminary testing of the methodology has also been conducted and, with the additional time provided by the extension, a second test will be completed to provide two full years of data for analysis and use in technical modifications.

-- Training: Included in this component are short-term workshops, seminars, and courses for technicians from national institutions as well as a limited amount of Master's-level training at CATIE. These activities are on-going and will continue over the extension period, with particular emphasis on strengthening the outreach capacity of national technicians.

An important factor leading to the recommendation to extend the project was a recently completed evaluation which examined a broad range of issues ranging from the administration of the project to the technical work being done. The evaluation, which was conducted by a team of four senior agriculturalists, concluded that the project is well managed and has the potential for a high degree of impact on small farmers in Central America. To achieve this potential, the evaluators recommended that the project be extended in order to overcome some existing constraints to better performance and to consolidate research results for more complete scientific recommendations on improved production systems.

Although some additional outputs are planned, primarily in training and the development of cropping systems, the purpose of the extension period is not to produce significant new outputs. On the contrary, drawing on the evaluation findings, the focus will be on completing the activities as originally designed, and doing so in a manner that will assure a maximum level of scientific confidence in the results and recommendations. At the end of the project, therefore, the following outputs are planned:

-- Farming Systems Research: Recommendations for up to 13 crop systems, 7 animal systems and 6 mixed systems

developed, with 10 crop, 7 animal and a minimum of 4 mixed systems to be validated.

-- Transfer: A methodology, including verification of its technical and economic performance, developed and training provided which enables national institutions to transfer recommended systems to the direct management of target farmers.

-- Extrapolation: An analogous area methodology developed and tested under one set of production determinants and which includes the description and results of five trial sites in the region.

-- Training: Over 1000 national level personnel trained in seminars and workshops presented on the production systems, validation, transfer and extrapolation; in addition, 11 Masters level degrees completed at CATIE.

The additional funding required for the extension period will permit activities to continue at the level needed to achieve the established outputs. Funds will cover the cost of technical personnel, scientific equipment and experiments, training and travel and per diem.

II. BACKGROUND

A. The Setting

Agriculture is the dominant sector in Central America. It involves approximately half of the population and employs sixty-five percent of the labor force. Agriculture generates twenty-two percent of the region's GDP and is the primary source of the region's foreign exchange earnings through the export of traditional crops.

The majority of the principal traditional crops (coffee, cotton, sugar and bananas) are produced by large farmers under plantation-type conditions. When focussing on the generally neglected subsistence or marginal sub-sector of small farmers, however, the fundamental problems are low productivity, low income and minimal participation in the cash economy. This is the result of, inter alia, restrictive national agricultural policies, insufficient public and private sector investment, inappropriate technologies and inputs, and inadequate capacity of national institutions to assist the small farmers. High levels of underemployment and unemployment characterize the sub-sector and, with a rapidly growing

population, the pressure to meet the demand for increased domestic food supplies and to assume a more viable role in the economy will become a difficult burden to manage.

B. History of the Project

The SFPS project evolved from an earlier ROCAP project entitled Small Farm Cropping Systems (AID Project No. 596-0064). The two projects represent attempts by ROCAP to utilize a regional approach in helping to address the problems of the agriculture sector and, in particular, the need to increase productivity.

As indicated by its title, the Small Farm Cropping Systems project had a limited focus, conducting research on improved methods of crop production. The project examined how crop production fit into the overall "system" of production as practiced at the individual farm level and attempted to adapt technical innovations in crop production to that system.

Examining the complete farm system -- i.e., taking into account the physical environment and socio-economic conditions in designing production systems as well as investigating ways to apply results obtained across similar areas of the region -- is also the point of departure for the SFPS project. In addition to crops, the approach of the project includes research on animal and mixed crop-animal systems, and attempts to identify those systems with the most potential for increasing small farm production, employment generation and income. Reducing the risks and uncertainties involved in adapting new technologies is another objective of the systems approach of the project.

An important and innovative feature of the project is that the research is carried out on typical small farms with local extension agents and not in the more carefully controlled environment of an experiment station. The principal benefits of this feature are that results are more realistic and that the demonstration effect on the farmer is significant; however, logistical problems associated with this type of field work -- such as easy access to some of the project sites -- have also exacted a cost which, while not significant, is a factor to consider in planning similar projects.

The Project Agreement for the SFPS project was signed in February, 1979. A four and a half year implementation period was anticipated and a PACD of September 30, 1983 was established. The goal of the project, which will remain un-

changed throughout the extension phase, is to increase outputs and income of the rural poor from the land they work. The purpose of the project is to develop a continuing Central American expertise to conduct and convey small farmer crop, animal and mixed farming production systems research.

The Tropical Agriculture Research and Training Center (CATIE) is the institution charged with overall implementation responsibility. CATIE staff and host country counterparts in all five Central American countries and Panama have been working on various project components. Cooperation with appropriate national level institutions is a key element of the project. Considerable emphasis has been placed on training national technicians in multidisciplinary research, in sharpening the focus of the research conducted by the national institutions and, particularly over the extension period, will be placed on strengthening a methodology for delivering improved production systems to small farmers via national institutions.

III. CURRENT PROJECT STATUS

A. Project Components

In setting out to achieve the established outputs, the project design focused on the following steps: identifying the systems in use as characterized by ecological, climatic and economic factors; identifying production constraints; developing improved systems; identifying how small farmers can best use the systems; and training national technicians in research technologies. These steps were translated into the four components of the project: Farming Systems Research (FSR), Transfer of Technology, Extrapolation, and Training.

1. Farming Systems Research

This is the principal component of the project and where the majority of the funds have been dedicated. It follows up on the pioneer work done on the earlier Small Farm Cropping Systems project and expands the focus from crops alone to include animals as part of the integrated farm systems approach. The approach is based on a complex interdependent association of plants, animals, soils, climate, labor, tools, and other inputs influenced by the ecological and socio-economic situation on the farm. Farmer knowledge, ambitions and ability are also taken into account in this systems approach.

Under this component, three systems are being examined: crops, animals and mixed crop-animals. For each system, a research methodology is to be developed along with a varying number of recommended alternatives for adoption of the systems. Final recommendations are based on an important step in the research process known as validation -- i.e., testing the alternatives under different on farm conditions to demonstrate that they are effective. The alternatives and how they are to be utilized are described in detailed reports called "tech packs". The number of recommendations to be developed and validated for each system are: 10 crops, 7 animals, and a minimum of 4 mixed.

As of April 1, 1983, the following outputs had been achieved:

-- Ten cropping systems developed with the validation process for eight expected to be finished by December, 1983; three additional cropping systems under development and scheduled for completion by December, 1984(including validation for two); and the FSR research methodology developed and applied in each country by December, 1983.

-- One animal system completed and work well along on five others; validation initiated for the completed system; and the research methodology under development and planned for completion by mid-1984.

-- Six mixed systems recommendations in development with four expected to be ready for validation by December, 1983, and the remaining two by mid 1984; and the research methodology is being developed and is planned for completion in early 1985.

2. Transfer of Technology

This component is directly tied to the development and validation of the production systems. Its purpose is to design and test a methodology whereby the performance of the tech packs developed for the systems are verified under conditions where the farmer manages them on his own. A key to the methodology is to assure not only that the technology works but also that it fits with farmer interest, resources and general activities, and that they know how to use the improved technologies.

Given the relationship of this component to the development of the production systems -- and the current status of systems development -- the transfer methodology obviously has not made the progress originally planned for this date. Nonetheless, preliminary steps in designing the methodology for crops are complete and project technicians are ready to proceed as data become available. A total of six field tests on the transfer methodology are planned in three countries. At this time, that target is expected to be met.

3. Extrapolation

The objective of this component is to test the hypothesis that it is possible to take a given tech pack developed under a specific set of natural determinants (i.e., geography, climate, soils, etc.) and transfer that tech pack to an analogous area in a different location. A specific cropping system, corn-sorghum, has been selected to test this hypothesis.

The corn-sorghum system was first identified and developed in El Salvador. Over the 1981-1982 cropping cycle, the system was tested at randomly selected sites in other parts of El Salvador as well as in Guatemala, Honduras and Nicaragua. Data from this first test has been collected and is being analyzed. Currently, five analogous areas in the same four countries are being identified to test the methodology over a second crop cycle. In addition to the five control sites, the tech pack will also be introduced in several non-analogous areas of the participating countries in order to measure the validity of the extrapolation methodology.

4. Training

There are three elements of this component: long-term training at the Master's level, short-term workshops and seminars, and in-service training through field activities. The Master's training is taking place at CATIE where the project staff has been instrumental in student development. The original target of 11 technicians trained in FSR has been achieved and, by the end of the project, funds available from the project and other donor sources will make it possible to train 11 more participants.

Seminars and workshops have been held for each of the production systems as well as for the transfer and extrapolation components. Over 1,000 national technicians have participated in these training activities, which exceeds the initial target of 200 by over four hundred percent. Informal,

on-the-job training for national technicians is a continuing process through direct participation in a variety of field exercises. Both types of training will continue until the end of the project.

5. Data Collection

Although not a specific project component, an activity common to each of the four components is the generation, collection and analysis of data, first to establish a baseline and subsequently to provide verification of results. The data includes not only specific information related to project activities but also general information on soils, climate, geography, etc. For much of this latter data, project staff have been able to draw on information developed under the ROCAP Agricultural Research and Information Systems project (596-0048) as well as from the Comprehensive Resource Inventory and Evaluation System (CRIES) which has been installed at IICA with ROCAP assistance.

Although data generation and collection has not been a problem, analysis has been slowed down by inadequate data processing facilities at CATIE. New hardware has recently been installed, however, which is capable of handling all data needs, and it is expected that lack of indepth and constant analysis will no longer be a constraint to progress. The availability of the new computer at CATIE will be particularly timely for the validation and extrapolation activities of the project.

In summary, the project has been progressing well despite some delays. The work on the cropping systems and the training through seminars and workshops are particularly encouraging. Although the animal and mixed systems are behind schedule, activities are well advanced and are operating smoothly. The Mission's assessment is that the project will continue moving in accordance with the revised schedule and that the established outputs will be achieved. The recently completed independent evaluation of the project supports this assessment.

B. Project Evaluation

An in-depth evaluation of the project was conducted in September, 1982, by a four person team provided under an IQC arrangement with Experience, Incorporated. The team visited all six participating countries and several project sites in each country. They also interviewed national technicians

working on the project as well as farmers involved in the field activities.

The team noted that, despite factors such as natural disasters, military actions, and governmental changes, the project has already achieved considerable success. The following comments from the final report provide an indication of the team's findings:

- "The research has provided the only common basis for preservation and furthering of agricultural research and extension in the region's national institutions."
- "The project has contributed to the maintenance of some degree of institutional capability to carry out such research. This has rested on the basic technical merits rather than any special 'leverages' of the project and its activities."

The report also noted that the project has been successful in showing that research can be done with active farmer participation and not just in the isolation of an experiment station. In addition, the regional approach was found to be effective and, in particular, that:

- CATIE has developed and implemented a pragmatic, workable FSR methodology which is transferable.
- The demonstration effect has been successful.
- Trained research staff have provided required technical competence in diverse disciplines.
- Continuity has been provided in the face of the unstable conditions under which the national institutions have had to work.
- Initial results of the extrapolation work has stimulated strong interest in farming systems research.

In addition to these positive comments, the evaluation noted that the project lacks an adequate plan to promote the extension of the systems on a large scale and that, despite the training that has occurred, linkages with the national institutions are not as strong as they should be. More in-service training for extension agents was suggested by the

team. They also, recommended that more regular meetings of project staff (including national personnel) be programmed to provide for the exchange of experiences as a means of strengthening both the linkages between CATIE personnel and the general networking process created by the project which involves other donors, CATIE research staff, national extension personnel and the small farmer.

The primary recommendation of the evaluation was to extend the project to consolidate results, conduct careful data analyses and assure that the highest quality results are obtained. For example, the team suggested that, in an ideal setting, the extrapolation methodology should be tested for five years to be assured of its reliability. In general, however, an extension to complete all project activities was strongly supported.

IV. THE EXTENSION

A. Rationale

This project, like most, has suffered implementation delays for a variety of reasons, some beyond the control of CATIE and others simply normal delays that are encountered. In this respect, therefore, one rationale for the proposed extension is to make up for the time that has been lost.

There are, however, several factors which argue for the twenty-one month extension phase:

-- The innovative approach of conducting the research on small farms is more time consuming, but the more realistic results obtained encourage its continuation.

-- The production cycles for animals require additional time to evaluate performance indicators to be used for validating recommended animal and mixed systems.

-- Validation, to be done correctly, requires approximately eighteen months and, for the mixed systems, will not begin until December, 1983.

-- The data generated by the project is voluminous and, until recently, could not be analyzed in a timely fashion because of inadequate computer facilities at CATIE. With the recently installed hardware, the appropriate level of analysis will lead to better quality outputs.

-- The extrapolation methodology, which the evaluation team felt has a tremendous potential for high payoff, will be fully validated through two crop cycles.

-- More in-service training will be provided.

-- Three additional cropping systems will be developed.

-- Four additional recommended cropping systems will be validated in Guatemala, assuming needed counterpart assistance is made available.

-- CATIE will have the opportunity to participate in the AID sponsored Horizontal Agricultural Transfer project being implemented worldwide by the University of Hawaii.

Although project outputs will be expanded slightly, the additional time for the project will essentially focus on meeting the original outputs and doing so with the highest level of scientific confidence. The marginal increase in funding (8% of the original budget) will keep necessary staff in place throughout the extension phase and provide appropriate support costs -- e.g., costs of experiments and tests, travel to field sites and training.

B. Project Components

In this section, the activities to be carried out under each component during the extension phase are described. Dates which are mentioned for specific outputs conform with a detailed implementation plan prepared by CATIE for each component through June, 1985. ROCAP has reviewed the plans and finds them to be consistent with the current implementation status and rationale for proposing an extension. More detail on the implementation plan for each component is provided in Annex C.

1. Farming Systems Research and Transfer

For the purposes of this discussion, the close relationship between research, validation and transfer activities make it natural to combine these components. As each system is discussed, the validation and transfer activities will also be described.

a. Cropping Systems

The activities under this system are the furthest along and, except for Panama, will be finished in all countries shortly after the extension phase begins. Specifically, by December, 1983, the research methodology will be completed and 8 recommended systems will have been validated and a transfer methodology developed. In Panama, activities on-going during the extension phase will be limited to completing the development of two systems and to validation and transfer of those systems. Activities in Panama will terminate by September, 1984.

At this time, most of the staff working on this system are involved in validation/transfer activities. As the work on the system is completed some of the staff will move to the animal and mixed systems to assist with the validation and transfer activities. The majority, however, will have their employment at CATIE terminated by mid-1984 once data analysis is completed and final reports are prepared.

b. Animal Production Systems

Under this system, activities will be on-going throughout the extension period. In the four participating countries (Guatemala, Honduras, Costa Rica and Panama), the focus will be on cattle production for dual output of milk and meat. At Turrialba and in parts of Costa Rica, the focus will be on small animal production (sheep, goats and pigs). Part of the work with small animals will be extended to other countries under the mixed systems activities.

The research methodology, particularly in relation to validation, is still being developed and will not be completed until the end of July, 1984. Currently, four production systems have been developed (Costa Rica, Guatemala, Honduras and Panama). Field work on systems development (i.e., validation on farms) will be completed in Guatemala and Honduras by December, 1984, and in Panama and Turrialba by June, 1985. Validation/transfer activities for one system (dairy) was initiated in Costa Rica in early 1983. Completion of the validation/transfer activities will require until the end of the project because the longer production cycle for animals necessitates additional time to evaluate performance indicators.

A total of seven recommended production systems will be developed by the end of the extension period: one

in each country involving the dual purpose cattle production and two at CATIE involving goats and pigs.

Data processing/analysis and preparation of final reports are the final activities contemplated under this system. They will be completed in Guatemala and Honduras by December, 1984, in Honduras and Panama by the end of the extension period.

c. Mixed Systems

Research on the mixed systems did not begin until mid-1982 and, as a result, is the furthest behind in development. The extension period, therefore, will permit a continuation of planned field activities leading to achievement of established outputs. These include basic research on methodology, systems design and tech pack preparation, and validation and transfer. Four countries are participating in the development of this system: Guatemala, El Salvador, Honduras and Costa Rica.

The research methodology for mixed systems will be completed by April, 1985. Based on experience from the crop and animal systems, it has been learned that the methodologies are not easily transferred from one system to another as was originally thought. The additional time and resources that must be devoted to this activity, plus the slow start in development of the system, are the principal reasons why the methodology will not be ready until the end of the project.

A total of six mixed system recommendations will be developed, and at least four of these will enter the validation phase by December, 1983. The final two systems will be ready by mid-1984, and it is hoped that experience in validating the other recommended systems will permit a reduction in the amount of time needed to complete their validation.

An important element of the mixed systems over the extension period will be working sessions with national personnel in describing, designing and validating the systems. The time offered by the extension will permit more intensive efforts in this area than were originally planned. CATIE technicians who will have completed validation activities in crops and animals will be available to provide the additional assistance to make this possible.

Since all validation activities will not end until the project terminates, data analysis and report preparation will also require the time up until the end of the project for completion. These activities, however, will take place at CATIE where all project information will be centralized.

2. Extrapolation

As previously noted, the research under this component is limited to the cropping systems and, in particular, to a system of corn-sorghum. Experiments in El Salvador in 1982 were very successful although the data may be abnormal because the crop cycle had a drought followed by heavy rains and flooding. To recheck the data another year of field research has been initiated and will be completed by March, 1984. This second series of testing is not be restricted to El Salvador but is also being undertaken in Guatemala, Honduras and Nicaragua. Data analysis activities will also be carried out at CATIE. A total of twenty farm sites will be involved.

The research already completed on the extrapolation methodology has been greatly assisted by the data base which has been developed by this component. Factors in the data base include annual rainfall, length of normal dry spells during rainy seasons, temperature ranges, life zones, soil classifications, topography and principal cultivation practices. Thus, although extrapolation activities will be focussing on just one cropping system, the data base which has been developed (using the CRIES system) will be a major benefit in applying the methodology to other systems. Technicians will continue to refine the data base during the first part of the extension phase.

Because of the progress already achieved under this component, it is expected that all planned work will be completed early in the extension period. Analysis of the data from the final experiments and trials should be finished by June, 1984, and a final report prepared by August.

3. Training

The recent evaluation documented that training activities have already exceeded planned outputs in terms of field studies and short-term seminars and workshops. Long-term Master's training is in process and 22 candidates will receive their degrees. Training in validation, transfer and

extrapolation is proceeding in accordance with the revised schedules for the development of those methodologies.

In the extension phase, additional short-term training will be provided through short courses, seminars and workshops. By December, 1983, eight short courses on cropping systems and five on animal systems will be held; without even a brief extension this number would have to be cut back. For the mixed systems, an additional four short courses at the national level and one regional course are now planned; these will not be held, however, until late 1984 and early 1985 as research on this system enters its final stage. Through these additional mixed system courses above, eighty more national technicians will be trained than previously planned.

Overall, more than 200 additional national technicians will participate in formal, short-term training activities during the extension period. In addition, on-the-job training through on-going informal field activities will continue during the extension period. This training will be particularly important because it will provide the project staff with the opportunity to strengthen the linkages between the regional and national institutions and to work closely with extension personnel who will be working with the technologies at the farm level.

No additional long-term training is planned for the project.

VI. FINANCIAL ANALYSIS AND PLAN

1. Financial Analysis

The activities planned for the extension will essentially be a continuation of current activities and will not require the introduction of new inputs to be financed. Nonetheless, since the project's life will be extended for twenty-one months, an increase in the current funding level will be needed.

In an analysis conducted in March, 1983, CATIE and ROCAP staff estimated that by December 31, 1983, the project pipeline would be \$818,500. The following factors were identified as contributing to the pipeline:

-- High cost international staff have gradually been replaced by national professionals as part of the plan for tech-

nology transfer and institutionalization of project results;

-- Several professionals who were initially funded by the project have been transferred to CATIE core staff and are funded from internal CATIE resources;

-- The late start up of the research on the animal and mixed systems led to lower disbursements in the early years of the project;

-- Field activities, including experiments, have not been as expensive as originally estimated;

-- Work on the cropping systems will be winding down as the mixed systems reach a peak level of activities, and existing staff will be available to meet the demand for assistance;

-- The project has not been as active in all countries as originally planned (e.g., there will be no mixed systems work in Nicaragua);

-- Favorable exchange rates in Costa Rica where a large amount of local currency costs are incurred; and

-- Other donors have contributed to the training activities, particularly the Kellogg Foundation which has financed most of the M.S. training.

In 1982, the first year when all of the components were active, project disbursements averaged slightly more than \$120,000 per month. This disbursement rate is projected to increase slightly in 1983 to approximately \$138,000 per month because even more activities will be on-going for most of the year. Table I summarizes the financial status of the project and shows where expenditures are expected to be at the end of 1983. Based on the detailed implementation plans developed by CATIE for each component, the cost of extending the project to June, 1985, was calculated. That cost (\$1,415,500) minus the estimated pipeline as of December 31, 1983, results in an additional funding requirement of \$597,000 for the extension period.

2. Financial Plan

As can be seen from Table I, the additional funding requirements fall into five line items from the original project budget: personnel (professional and non-professional); travel

TABLE I
SUMMARY PROJECT FINANCIAL STATUS
(\$000)

	Current Budget	Expenditures thru 12/31/82	Estimated Expenditures CY 1983	Estimated Expenditures thru 12/31/83	Balance (1-4)	Required for Extension	New Funding Required (6-5)	New LOP Budget (1+7)
Professional Staff	3,061.7	2,136.4	600.0	2,736.4	325.3	589.5	264.2	3,325.9
Non-Professional Staff	989.9	648.0	300.3	948.3	41.6	88.5	46.9	1,036.8
Commodities	340.5	300.5	40.0	340.5	-	-	-	340.5
Travel & Per Diem	639.4	402.8	180.0	582.8	56.6	132.5	75.9	715.3
Training	119.5	10.9	80.0	90.9	28.6	92.0	63.4	182.9
Other Costs-Scientific	1,366.5	832.3	460.0	1,292.3	74.2	412.7	338.5	1,705.0
Mgt. Support - CATIE	535.0	521.3	-	521.3	13.7	100.3	86.6	621.6
Mgt. Support - ROCAP	66.0	66.0	-	66.0	-	-	-	66.0
Contingencies	<u>284.5</u>	<u>6.0</u>	<u>-</u>	<u>6.0</u>	<u>278.5</u>	<u>-</u>	<u>(278.5)</u>	<u>6.0</u>
	7,403.0	4,924.2	1,660.3	6,584.5	818.5	1,415.5	597.0	8,000.0

and per diem related to working at field sites, coordinating with other sites and with CATIE headquarters at Turrialba; training for national personnel (exclusively short-term and on-the-job activities); scientific costs (including equipment) associated with running experiments and tests in each component; and administrative costs for CATIE.

Over the extension period, CATIE and the participating national institutions will continue to provide the counterpart support as has been provided to date. For CATIE, this is primarily core staff personnel who work directly with project funded technicians. At least one key professional currently funded by the project will be picked up as part of CATIE's core staff and will continue working on the project during the extension period. CATIE will also provide training facilities, office and laboratory space, and some administrative support with its own funds. For the national institutions, the provision of technicians to participate in the field activities will constitute their counterpart support. The value of the additional CATIE support over the extension period is estimated at \$664,000, and that of the participating national institutions at \$295,000.

Tables II - VI provide a breakdown, by component and country, of the funding requirements for the extension period.

VI. IMPLEMENTATION ARRANGEMENTS

In that the extension period will essentially permit the continuation of on-going activities over a longer period of time, no special implementation arrangements will be needed. CATIE has working agreements with the participating national institutions and these will remain in effect during the extension period.

Project management within CATIE and ROCAP will remain unchanged. A good working relationship has been established and no major problems have been encountered in dealing with implementation questions or issues. The recent evaluation attested to the effectiveness of the existing arrangements in stating that "The project is well managed."

TABLE II
EXTRAPOLATION COMPONENT BUDGET
January 1984 - June 1985
(\$000)

	<u>GUAT.</u>	<u>HOND.</u>	<u>EL SAL.</u>	<u>NIC.</u>	<u>CATIE</u>	<u>TOTAL</u>
Professional Staff	5.6	2.6	5.8	-	42.5	56.5
Non Professional Staff	1.0	1.0	1.0	0.5	-	3.5
Commodities	-	-	-	-	-	-
Travel & Per Diem	1.9	1.2	0.9	0.8	4.0	8.8
Training	-	-	-	-	-	-
Other Costs-Scientific	3.6	1.8	1.7	1.2	20.0	28.3
Mgt Support - CATIE	-	-	-	-	-	-
Mgt Support - ROCAP	-	-	-	-	-	-
Contingencies	-	-	-	-	-	-
Totals	12.1	6.6	9.4	2.5	66.5	97.1

TABLE III
CROPPING SYSTEMS COMPONENT BUDGET
(VALIDATION/TRANSFER)

January 1984 - June 1985

(\$000)

	GUAT.	HOND.	EL SAL.	NIC.	C.R.	PAN.	CATIE	TOTAL
Professional Staff	0.4	7.2	0.4	10.0	11.3	14.0	38.8	82.1
Non Professional Staff	-	0.3	-	0.3	0.3	0.5	2.0	3.4
Commodities	-	-	-	-	-	-	-	-
Travel & Per Diem	0.7	1.5	0.7	1.5	1.3	2.5	10.5	18.7
Training	0.5	1.0	0.5	1.0	1.0	2.0	20.0	26.0
Other Costs-Scientific	1.0	7.0	1.0	6.6	5.6	27.7	29.0	72.9
Mgt Support - CATIE	-	-	-	-	-	-	-	-
Mgt Support - ROCAP	-	-	-	-	-	-	-	-
Contingencies	-	-	-	-	-	-	-	-
Totals	2.6	17.0	2.6	19.4	19.5	41.7	100.3	203.1

TABLE IV
ANIMAL SYSTEMS COMPONENT BUDGET

January 1984 - June 1985

(\$000)

	<u>GUAT.</u>	<u>HOND.</u>	<u>C.R.</u>	<u>PAN.</u>	<u>CATIE</u>	<u>TOTAL</u>
Professional Staff	11.2	19.0	9.5	19.0	52.0	110.7
Non-Professional Staff	12.0	13.0	7.5	45.0	9.0	46.0
Commodities	-	-	-	-	-	-
Travel & Per Diem	30.0	5.5	6.0	5.5	12.0	32.0
Training	3.0	3.0	-	40.0	5.0	15.0
Other Costs-Scientific	2.5	6.0	22.0	18.0	20.0	68.5
Mgt Support-CATIE	-	-	-	-	-	-
Mgt Support-ROCAP	-	-	-	-	-	-
Contingencies	-	-	-	-	-	-
TOTALS	31.7	46.5	45.0	51.0	98.0	272.2

TABLE V
MIXED SYSTEMS COMPONENT BUDGET
January 1984 - June 1985
(\$000)

	<u>GUAT.</u>	<u>HOVD.</u>	<u>EL. SAL.</u>	<u>C.R.</u>	<u>CATIE</u>	<u>TOTAL</u>
Professional Staff	41.2	82.0	51.0	13.0	153.0	340.2
Non-Professional Staff	-	-	-	6.0	29.6	35.6
Commodities	-	-	-	-	-	-
Travel & Per Diem	10.0	10.0	10.0	10.0	33.0	73.0
Training	8.5	8.5	8.5	8.5	17.0	51.0
Other Costs-Scientific	30.0	30.0	30.0	30.0	123.0	243.0
Mgt Support-CATIE	-	-	-	-	100.3	100.3
Mgt Support-ROCAP	-	-	-	-	-	-
Contingencies	-	-	-	-	-	-
TOTALS	89.7	130.5	99.5	67.5	455.9	843.1

TABLE VI

SUMMARY PROJECT BUDGET BY COMPONENT

January 1984 - June 1985

(\$000)

	<u>Extrapolation</u>	<u>Cropping</u>	<u>Animal</u>	<u>Mixed</u>	<u>Total</u>
Professional Staff	56.5	82.1	110.7	340.2	589.5
Non-Professional Staff	3.5	3.4	46.0	35.6	88.5
Commodities	-	-	-	-	-
Travel & Per Diem	8.8	18.7	32.0	73.0	132.5
Training	-	26.0	15.0	51.0	92.0
Other Costs-Scientific	28.3	72.9	68.5	243.0	412.7
Mgt Support - CATIE	-	-	-	100.3	100.3
Mgt Support - ROCAP	-	-	-	-	-
Contingencies	-	-	-	-	-
Totals	97.1	203.1	272.2	843.1	1,415.5

VII. PROJECT ACTIVITIES IN NICARAGUA

For the extension period, no new activities are planned for Nicaragua. The continuation of a limited number of activities, however, is planned. In all cases they are related to field trials and experiments that have been on-going for the past two to three years. The information they are generating is essential to the total data base created by the project and from which final systems recommendations will be made. Not completing these activities will jeopardize the data base and, consequently, the recommendations made based on its contents.

The components which have activities in Nicaragua are:

-- Cropping systems where all activity (including validation and transfer) will be completed by December, 1983;

-- Animal systems which has begun to phase down activities in Nicaragua and will terminate them completely by November, 1983;

-- Informal training activities associated with the field work being done under the crop and animal systems; and

-- Extrapolation where a second series of testing is now underway and for which the results are critical to the validation of the methodology. The work in Nicaragua will be completed by April, 1984.

Although similar research activities are being carried out in other countries, the work being done in Nicaragua is the only research on the validation of a cash crop system and where validation is occurring in a tropical, wet-dry life zone. While it would be possible to undertake these activities in other countries, to do so would require reinvesting the time and financial resources already spent in Nicaragua. Even with the proposed extension, the project will not have those resources available.

The benefits that will be achieved by finishing the on-going activities in Nicaragua will accrue to all countries in the region; conversely, not completing them and rendering much of the research to date useless would affect not only Nicaragua but all of the countries since the activities are designed to provide results for application throughout the region and not just the country where the research is conducted.

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ANNEX A

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TOR: 1353
CN: 23179
CHRG: SOCP
INFO PCON AID

ACTION: PROGRAM
INFO: RURAL DEV
GENERAL DEV

AIDAC GUATEMALA FOR ROCAP

E.O. 12356: N/A

TAGS:

SUBJECT: SMALL FARMER DEVELOPMENT PROJECT (596-0093)

REF.: GUATEMALA 02692

1. AID/W CONCURS WITH THE MISSION'S REQUEST FOR A 21 MONTH EXTENSION OF THE SMALL FARMER DEVELOPMENT PROJECT PACD TO JUNE 30, 1985, WITH A CONCOMITANT DOLS 597,200 INCREASE IN LOP COST. FY 1983 OYB FOR PROJECT REMAINS DOLS 2.145 MILLION. THE MISSION SHOULD PROCEED WITH THE DEVELOPMENT OF THE PROJECT AMENDMENT.

2. THE MISSION IS REQUESTED TO PROVIDE THE INFORMATION FOR THE CONGRESSIONAL NOTIFICATION ACTIVITY DATA SHEET THAT WILL HAVE TO BE SUBMITTED BEFORE THE MISSION CAN AUTHORIZE PROJECT.

3. ALTHOUGH THE PROJECT APPEARS TO BE ONE THAT MAY BE CONTINUED NOTWITHSTANDING THE PROHIBITION OF ASSISTANCE TO NICARAGUA OF BROOKE/ALEXANDER, MORE INFORMATION IS NEEDED BEFORE A FINAL LEGAL DECISION CAN BE MADE. MISSION IS THEREFORE REQUESTED-TO PROVIDE TO GC/LAC A DESCRIPTION OF THE ACTIVITIES TO BE FINANCED WITH THE INCREASE WHICH WILL BENEFIT THE COUNTRY OF NICARAGUA, THE EFFECT ON THE-PROJECT IF - NICARAGUA WERE EXCLUDED, AND ANY OTHER-INFORMATION WHICH THE MISSION CONSIDERS RELEVANT AND HELPFUL. SHJLIZ

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CENTRO AGRONOMICO TROPICAL DE INVESTIGACION Y ENSEÑANZA

Turrialba - Costa Rica - Teléfonos: 56-64-31 - 56-01-69 - Telex: 8005 CATIE C. R. - Cable: CATIE Turrialba

D-1377
May 7, 1983

Dr. Paul A. Montavon
ROCAP Director
c/o American Embassy
Guatemala, GUATEMALA

ACTION: PROGRAM
INFO: RURAL DEV

USAID
C. R. Montavon

Dear Dr. Montavon:

We have reviewed the progress of the Small Farm Production Systems Project (SFPS) jointly with personnel from the acting RADO office of ROCAP, taking into consideration the recommendations made during the evaluation of the SFPS conducted in September, 1982.

As a result of the review, I am requesting that the Small Farm Production Systems Project be extended for twenty-one months beyond its original PACD, September 30, 1983.

Of the original US \$7.4 million Project budget, the projected remainder up to December 31, 1983 amounts to about US \$750,000. This residue is not sufficient to maintain project activities for the 21-month extension period and therefore the additional amount of about US \$600,000 will be necessary.

During the extension period, studies related to validation of animal and mixed systems will be emphasized. The work plans for the activities to be conducted during this period have been formally presented to the acting RADO of ROCAP.

I would like to take this opportunity to thank you for your continuous support to this Center.

Sincerely,

Gilberto Pérez
Director

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DATE	INITIALS



cc: REMcColaugh
AGutiérrez
CBurgos
GP/fov

1983
J F M A M J J A S O N D

1984
J F M A M J J A S O N D

1985
J F M A M J

III. Animal Production -
Systems Research and
Evaluation

Costa Rica

Dairy

Dual purpose

Small Animals (2)

Honduras

Dual purpose

Guatemala

Dual purpose

Nicaragua

Dual purpose

Panama

Dual purpose

- Validation all
animal systems

- Publication of
tech packs - 7

- Publication of FSR
methodology

IV. FSR Mixed Systems

- Identification of 9
packages in six coun-
tries and evaluation

	1983	1984	1985
	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J

- Validation of one package in El Salvador

- Validation of at least 5 packages in CAP (not Nicaragua)

- Publication of 6 tech packs

- Publication of FSR mixed system methodology

CROPPING SYSTEM ACTIVITIES
1983 - 1985

	1983												1984												1985					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
1. Field Level Validation and Transfer Trials																														
Panama																														
Costa Rica	_____																													
Nicaragua	_____																													
Honduras	_____																													
El Salvador*	_____																													
Guatemala*	_____																													
2. Data Processing and tech pack analysis, finalize and publish tech packs and area descriptions																														
Panama (2)	_____																													
Costa Rica (2)	_____																													
Nicaragua (2)	_____																													
Honduras (3)	_____																													
El Salvador (2)	_____																													
Guatemala (2)	_____																													

* Major trials completed, additional activities may be carried out if agreement is reached between CATIE and each country.

	1983	1984	1985
	J F M A M J J A S O N D	J F M A M J J A S O N D	J F M A M J

3. FSR Crops methodology
finalize and publish

CATIE

4. FSR Crop validation/
transfer methodology
publication

CATIE

ANIMAL PRODUCTION ACTIVITIES
1983 - 1985

	1983												1984												1985					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
1. Dual purpose tech pack Development and Evaluation																														
Costa Rica	_____																													
Honduras	_____																													
Guatemala	_____																													
Panama	_____																													
Nicaragua	_____																													
2. Dual purpose tech pack validation																														
Honduras 4 Farms																														
Guatemala 5 Farms	_____																													
Costa Rica 4 Farms	_____																													
Panama 5 Farms	_____																													
3. Intensive Dairy model validation/transfer																														
Atlantic zone C. Rica	_____																													
- Publish tech pack results	_____																													

MIXED SYSTEMS ACTIVITIES
1983 - 1985

	1983												1984												1985					
	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
1. Identification of mixed systems packages and evaluations																														
Costa Rica (2)	_____																													
Honduras (2)	_____																													
El Salvador (2)	_____																													
Panama (1)	_____																													
2. Validation of mixed systems																														
El Salvador*	_____																													
3. Validation of at least one mixed system tech pack per country																														
Costa Rica - 5 Farms	_____																													
Honduras - 5 Farms	_____																													
Guatemala - 5 Farms	_____																													
El Salvador - 5 Farms	_____																													
Panama - 5 Farms	_____																													
4. Analysis and publication of at least 6 mixed system tech packs	_____																													

* Corn/Sorghum/Cattle/Hogs

20

1983
J F M A M J J A S O N D

1984
J F M A M J J A S O N D

1985
J F M A M J

5. Finalish and publish
the FSR mixed systems
methodology
-