PD-ABM-871

A.I.D. EVALUATION SUMMARY - PART I

1. BEFORE FILLING OUT THIS FORM, READ THE ATTACHED INSTRUCTIONS. 99279
2. USE LETTER QUALITY TYPE, NOT DOT MATRIX TYPE.

IDENTIFICATION DATA

A. Reporting A.I.D. Unit:
Mission or AID/W Office USAID/El Salvador
(ES# •)

B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan?
Yes [X] Slipped [ ] Ad Hoc [ ]
Evaluation Plan Submission Date: FY • Q •

C. Evaluation Timing
Interim [X] Final [ ]
Ex Post [ ] Other [ ]

D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated; if not applicable, list title and date fo the evaluation report.)

Project No.	Project / Program	First PROAG or Equivalent (FY)	Most Recent PACD (Mo/Yr)	Planned LOP Cost (000)	Amount Obligated to Date (000)
519-0362	Coffee Technology Transfer				

ACTIONS

E. Action Decisions Approved By Mission or AID/W Office Director

Action(s) Required	Name of Officer Responsible for Action	Date Action to be Completed
•		

APPROVALS

F. Date of Mission Or AID/W Office Review Of Evaluation: (Month) • (Day) • (Year) •

G. Approvals of Evaluation Summary And Action Decisions:

	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission of AID/W Office Director
Name (Typed)	•	•	•	•
Signature				
Date				

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

The purpose of the mid-term evaluation of the Coffee Technology Transfer Project (No. 519-0362) to indicate the benefits derived from research and extension programs and estimate the effects of project-sponsored activities. The project is being implemented by PROCAFE, a private sector organization entrusted with coffee technology development and transfer since 1991. The major areas of concern for the evaluation were the 1. impact of privatization on the research and extension program; 2. project's role in the recovery of the coffee sector; 3. impact on the productivity and income levels of the small farmer; 4. effectiveness of PROCAFE in the delivery of technical services and its development as an efficient organization; and, 5. adequacy of project inputs and their management by PROCAFE. The three-man evaluation team interviewed PROCAFE personnel and technicians at all levels, the IRI technical assistance team, USAID officials and participating coffee producers. Principal conclusions and recommendations are:

Conslusions:

1. PROCAFE is developing into a capable research and extension organization, focussing on applied research and practical solutions to major production problems.
2. PROCAFE's administration is improving and providing adequate support to research and extensions activities.
3. Project targets will not be reached, and PROCAFE does not measure the impact that its technology and transfer programs are having on the coffee sector.
4. PROCAFE management is looking to instill greater emphasis on economic and environmental criteria in its research program.
5. Future financing of the program hinges on the adoption of a permanent check-off charge on coffee exports; which looks likely, but with no guarantee.

Recommendations:

1. Greater emphasis must be given to the economic feasibility of PROCAFE's recommendations and their income implications if adopted.
2. Project targets should be revised and adjusted to a more realistic estimate of PROCAFE's capabilities.
3. Alternative sources of future funding should be examined and s trategy developed.
4. PROCAFE should give attention to the measurement and utilitzation of information on the impact of its recommendations, including the use of modern information management methods.
5. Greater attention should be given to the special circumstances of the low-resource producer and the technologies that are appropriate and attainable.

COSTS

I. Evaluation Costs

1. Evaluation Team Name	Affiliation	Contract Number OR TDY Person Days	Contract Cost OR TDY Cost (U.S. $)	Source of Funds
Tom Easterling	AGRIDEC			
Keith Jamtgaard	AGRIDEC			
Michael Schwartz	AGRIDEC			

2. Mission/Office Professional Staff Person-Days (Estimate) _____

3. Borrower/Grantee Professional Staff Person-Days (Estimate) _____

A.I.D. EVALUATION SUMMARY - PART II

SUMMARY

J. Summary of Evaluation Findings - Conclusions and Recommendations (Try not to exceed the three (3) pages provided
Address the following items:

- Purpose of evaluation and methodology used
- Purpose of activity(ies) evaluated
- Findings and conclusions (relate to questions
- Principal recommendations
- Lessons learned

Mission or Office	Date This Summary Prepared:	Title And Date Of Full Evaluation Report:
USAID/El Salvador	17 Nov 95	Mid-Term Evaluation Coffee Tech.Transfer

The evaluation was carried out to review PROCAFE's ability to support coffee research and extension and to estimate the economic effects of project-sponsored technology. Of particular interest were the sustainability of PROCAFE without external donor assistance and the degree of success of the Salvadoran Government's decision to privatize coffee technology generation and extension.

The evaluation was carried out by a three-person team over a four-week period during October-November, 1995. The team was based in the city of San Salvador and traveled extensively throughout the country while visits to coffee farms and processing plants, interviews with large producers, small farmers, cooperatives, agribusiness operators, USAID officials, specialists from the technical assistance team provided by the International Research Institute (IRI) and PROCAFE, the implementing organization.

The evaluation was carried out by a three-person team over a four-week period during October-November, 1995. The team was headed by an Evaluation Specialist with extensive experience in USAID project evaluations, who has a strong background in agribusiness management. The second member worked as the team's Agricultural Research Specialist. This individual has previous work experience as a USAID direct-hire employee, as the manager of a coffee production and export project, and now owns a gourmet coffee processing and exporting company in Guatemala. The third member was the team's Sustainable Agriculture Specialist. This person has extensive experience with rural cooperatives and small farmers, and in recent months he has participated in three different evaluations of USAID projects in the Salvadoran agricultural sector. This individual combines a teaching career in sociology with work in international development.

CONCLUSIONS

Management Issues

PROCAFE has made excellent progress toward becoming a capable, permanent coffee research and extension organization.

PROCAFE's planning and management of budgets is highly effective, but the Board of Directors is too deeply involved in the day-to-day activities of the organization.

Although the technical assistance (TA) provided by IRI is expensive, on balance it appears to be reasonable in terms of cost effectiveness. In order to consolidate the advances made to date in some specialized areas, additional international TA will be needed beyond the expiration date of the IRI contract.

The slow delivery of vehicles and computers has had a negative impact on PROCAFE's performance, particularly in extension activity.

PROCAFE's current goal of assisting 11,000 small farmers from 1993 - 1997 is 26% less than the Project goal of assisting 15,000 small producers. The Project goal will not likely be met because of the limited number of farmers served by each extension agent. Greater numbers of farmers could be served if the current method of delivering TA were changed to enable each extensionist to reach more farmers.

The targeted areas of coffee rehabilitation will not likely be met since the decision to rehabilitate is largely dependent on economic factors outside PROCAFE's control.

PROCAFE has yet not developed methods for compiling information on yield improvements by assisted farms.

It is not yet possible to quantify the impact of the Project on production and productivity of the coffee sector with any degree of certainty. It is simply too early in the Project to determine what the impact has been so far.

Although somewhat concentrated, the present coffee marketing network provides a much higher degree of competition than previously existed when all coffee marketing was carried out INCAFE.

On average, the coffee grower has enjoyed approximately a 25% greater share in the price spread between producer prices and export prices under private marketing than under state marketing.

The lack of assurance over long term funding of the "dolar-café" retention is a dark cloud over PROCAFE's future.

PROCAFE's current financial position is relatively strong. The organization should be able to provide approximately the same level of service as it now does, after the Coffee Technology Transfer Project ends. As long as the "dolar-café" donation continues at its current level, PROCAFE will be able to function normally. However, the Foundation is totally dependent on this retention as its primary source of income.

Research Issues

The privatization of coffee research has had the following positive effects:

a. PROCAFE management has given priority to solving important problems in the coffee sector. Its mandate is to rapidly and efficiently produce technology which will result in increased productivity and farm income.

b. PROCAFE is developing an effective and efficient administration to support its primary functions: technology generation and transfer.

c. PROCAFE has incorporated the principal players from the coffee sector into its Board of Directors and Advisory Council, thus providing a forum for private sector participation.

d. PROCAFE has attempted to integrate the research and transfer functions to achieve correct solutions to significant problems. That integration process is still in progress.

The mandate from the PROCAFE Board of Directors is for applied research. The metamorphosis from an ISIC to a PROCAFE research methodology is as yet incomplete. PROCAFE's research is still oriented toward problems, not solutions; toward individual components in the production process, not the farm enterprise.

While the problems which face all coffee producers are generally the same, the solutions are not. PROCAFE's research program does not differentiate between the technologies that are appropriate for the low versus high resource producers.

If, *a priori*, the research and extension institution is aware of conditions which will impede the adoption of the technical recommendations it offers as solutions, then it is not really offering solutions.

PROCAFE's extension agents need a greater range of information from its researchers to better define producer options. One-size-fits-all recommendations are not valid given the diversity of the coffee sector, and the researcher must participate in defining best alternatives for farm conditions.

PROCAFE does not monitor and measure the impact on the coffee sector of recommendations that have been adopted. Impact is estimated on a subjective basis.

The complexity and importance of the environmental aspects of the coffee industry, are not reflected in the research program. Research activities that reflect long-range concerns about the environmental originate from top PROCAFE management and the Advisory staff, not from the technical offices.

Demand for the GIS has been from the individuals in the coffee sector, primarily for mapping services; PROCAFE technicians have not grasped the contribution that the GIS could make to their research and transfer activities.

PROCAFE management should educate the technician as to the uses of the GIS in the design, implementation and evaluation of his research program.

Coffee and environmental quality are priority areas of concern for PROCAFE management and largely dependent on post-harvest processing conditions. Yet, there is no permanent program that is adequately staffed and funded to address problems in this area.

In the area of "organic coffee" there is little collaboration between PROCAFE and CLUSA, another USAID supported effort. Given that the CLUSA project is scheduled to terminate in the near future, PROCAFE should consider providing support in this area.

Technology Transfer Issues

Those currently receiving Technical Assistance from PROCAFE regard the assistance highly, but often indicate that they would like to see even more services forthcoming.

The performance measures that PROCAFE uses measure intermediate level targets and gauge process rather than outcomes. For instance, focussing on small group formation is useful as an administrative tool, but not helpful for measuring impact, which is important for determining when assistance should be reduced.

The inability of small producers and agrarian reform cooperatives to obtain access to credit is a serious limitation to the adoption of PROCAFE's recommendations.

For cultural reasons, male extensionists are less effective in working with female farmers than female extensionists. The female extensionists have a higher degree of confidence with female farmers. Therefore in order to reach more female farmers, more female extensionsts should be used.

RECOMMENDATIONS

Management Issues

PROCAFE should hire an organizational expert to work on behalf of the Board of Directors for a short period to review reporting and control procedures necessary to keep the board informed of PROCAFE's major activities, but which would require fewer meetings and less intervention in daily activities.

USAID and PROCAFE should explore alternatives to continue TA in specific areas beyond the expiration date of the IRI contract. Areas where continued TA is needed include GIS, environmental services, and occasional problem-solving or technology transfer for coffee processing.

PROCAFE should propose to USAID a modification of Project outputs to more realistic levels. These revised goals should be included in PROCAFE's revised strategic plan for the period 1996 - 2000.

PROCAFE should modify its method of keeping track of the number of small farmers assisted by including the small, private producers affiliated with UCAFES' cooperatives in the overall score.

PROCAFE should make a concerted effort with the leaders of the coffee sector to resolve the present uncertainty over its long term funding. Once the industry has developed a common position, CSC should approach GOES with a concrete proposal to secure financing for the organization's recurring costs.

PROCAFE should follow through on its plans to contact international donors for possible funding, either from outright donations or from service fees for assisting projects related to the Foundation's overall objectives, such as reforestation or environmental improvements. This would require installing or contracting the capability to develop, market and administer projects.

Research Issues

Research methodology should be modified to incorporate economic criteria into the formulation of recommendations and economic analysis in measuring the consequences on the farm enterprise of adopting those recommendations.

The research agenda should be reprogrammed to reflect the magnitude of the long-range environmental problems facing El Salvador.

PROCAFE should make use of the modern information management techniques that are available to it to monitor and analyze the IMPACT that its program and recommendations are having on the coffee sector, and utilize this information to adjust and fine tune its program.

Research should be more focused on actual farm conditions, including the capacity of producers to adopt and manage the technology recommended by PROCAFE and the relevance of the technology to those conditions. Special concern should be given to the low-resource producer and his ability to adopt coffee and diversification technology.

PROCAFE management should educate the technician as to the uses of the GIS in the design, implementation and evaluation of his research program.

Technology Transfer Issues

PROCAFE needs to develop a "graduation plan" for its clients, and particularly for the small producer groups that it is creating. As presently conceived, it is not clear that the groups will ever be able to survive without steady support from PROCAFE technicians.

For greater impact on rural females, more female extensionists are needed. PROCAFE should change policies to actively encourage employment of females.

A gender issues course for PROCAFE's upper and middle managers as relates to women extensionists would also be useful.

PROCAFE does have a methodology which it employs to form and conduct small producer group activities, and it measures progress in terms of achieving procedural goals such as agent visits and the establishment of nurseries. However PROCAFE's mission to assist small producers would benefit from setting a limited number of outcome targets for the group members, such as improving profitability by a given amount, or increasing productivity to a desired level, and then measuring impact in terms of progress toward achieving these targets.

One option that PROCAFE should weigh is the use of group leaders to amplify the efforts of extension agents. Giving greater training to these individuals would allow agents to either reach more small producers, or allow fewer agents to reach the current number.

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99280

Indefinite Quantity Contract LAG-4200-I-00-3059-00

Delivery Order No. 13

MID-TERM EVALUATION

OF THE

COFFEE TECHNOLOGY

TRANSFER PROJECT

Prepared for:

United States Agency for International Development
El Salvador

Prepared by:

Tom Easterling
Keith Jamtgaard
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November 1995

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ACRONYMS

ACRONYM	MEANING
ABECAFE	Salvadoran Association of Coffee Processors and Exporters
ACS	Coffee Growers Association of El Salvador
AID	Agency for International Development (U.S.)
BCR	Central Reserve Bank of El Salvador
BFA	Agricultural Development Bank of El Salvador
CACM	Central American Common Market
CADIEX	Advisory Committee on Research and Extension
CIDA	Canadian International Development Agency
CLUSA	Cooperative League of the United States
CSC	Salvadoran Coffee Council
CWT or cwt	Hundredweight (100 pounds)
EC	European Community
ECC	European Coffee Conference
EEC	European Economic Community
ENA	National Agricultural School
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GIS	Geographical Information System
GOES	Government of El Salvador
GTZ	The German Development Agency
ICO	International Coffee Organization
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
INCAFE	National Coffee Institute
IRI	International Research Institute, Inc.
IRM	Office of Information Resources and Management (USAID/Washington)
ISIC	Salvadoran Institute for Coffee Research
LOP	Life of project
MZ	manzana = 0.7 ha
NGO	A private, non-profit, non-government organization
PACD	Project Assistance Completion Date
PROCAFE	Salvadoran Coffee Promotion Foundation
STTA	Short-term technical assistance
TA	Technical assistance
UCAFES	Union of Coffee Producing Cooperatives of El Salvador
UCRAPROBEX	Union of Coffee Producers, Processors and Exporters
USAID	United States Agency for International Development

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EXECUTIVE SUMMARY

The evaluation was carried out to review PROCAFE's ability to support coffee research and extension and to estimate the economic effects of project-sponsored technology. Of particular interest were the sustainability of PROCAFE without external donor assistance and the degree of success of the Salvadoran Government's decision to privatize coffee technology generation and extension.

The evaluation was carried out by a three-person team over a four-week period during October-November, 1995. The team was based in the city of San Salvador and traveled extensively throughout the country while visits to coffee farms and processing plants, interviews with large producers, small farmers, cooperatives, agribusiness operators, USAID officials, specialists from the technical assistance team provided by the International Research Institute (IRI) and PROCAFE, the implementing organization.

A draft copy of the evaluation report was circulated to PROCAFE, USAID and the team of international advisors from IRI. Their comments have been incorporated into the text of this report, as appropriate.

Major conclusions, recommendations and lessons learned from the evaluations were the following:

CONCLUSIONS

Management Issues

PROCAFE's financial position projected over the medium term is relatively strong. As long as the "dolar-café" donation continues at its current level, PROCAFE should be able to provide approximately the same level of service as it now does, after the Coffee Technology Transfer Project ends. However, the lack of assurance over long term funding of the "dolar-café" retention is a dark cloud over PROCAFE's future.

PROCAFE has made good progress toward becoming a capable coffee research and extension organization. Its planning and budget management are highly effective, but the Board of Directors is too deeply involved in the day-to-day activities of the organization.

Although the TA provided by IRI is more costly than levels seen on many USAID projects, on balance it has been effective. USAID is receiving good value for the money spent on technical assistance.

PROCAFE's current goal of assisting 11,000 small farmers between 1993 and 1997 is less than the Project goal of assisting 15,000 small producers over the LOP. The Project goal is apparently based on erroneous information. At the current rate of progress it is doubtful that even 11,000 small farmers will be adequately served by the end of the Project. Furthermore, the targeted areas of coffee rehabilitation will not likely be met since the decision to rehabilitate is largely dependent on economic factors outside PROCAFE's control.

The slow delivery of vehicles and computers has had a negative impact on PROCAFE's performance, particularly in extension activity.

Research Issues

Privatization of coffee research has had the following positive effects:

a. PROCAFE management has given priority to solving important problems in the coffee sector. Its mandate is to rapidly and efficiently produce technology which will result in increased productivity and farm income.

b. PROCAFE is developing an effective and efficient administration to support its primary functions: technology generation and transfer.

c. PROCAFE has incorporated the principal players from the coffee sector into its Board of Directors and Advisory Council, thus providing a forum for private sector participation.

d. PROCAFE has attempted to integrate the research and transfer functions to achieve correct solutions to significant problems. That integration process is still in progress.

The mandate from the PROCAFE Board of Directors is for applied research. The metamorphosis from an ISIC to a PROCAFE research methodology is as yet incomplete. While the problems which face all coffee producers are generally the same, the solutions are not. PROCAFE's research program does not differentiate between the technologies that are appropriate for the low versus high resource producers.

The complexity and importance of the environmental aspects of the coffee industry, are not reflected in the research program. It is important that PROCAFE quickly define its longer-term activities related to the environment. El Salvador faces particularly serious environmental problems due to its high population density, severe dry season and porous volcanic soils and concentration of its coffee processing capacity.

Coffee and environmental quality are priority areas of concern for PROCAFE management and largely dependent on post-harvest processing conditions. Yet, there is no permanent program that is adequately staffed and funded to address problems in this area.

There needs to be a greater integration of economic criteria and analysis into PROCAFE's methodology, both for research and technology transfer.

PROCAFE does not monitor and measure the impact on the coffee sector of recommendations that have been adopted. Impact is estimated on a subjective basis.

In the area of "organic coffee" there is little collaboration between PROCAFE and CLUSA, another USAID supported effort.

Technology Transfer Issues

Those currently receiving Technical Assistance from PROCAFE regard the assistance highly, but often indicate that they would like to see even more services forthcoming.

The performance measures that PROCAFE uses for technology transfer are based on intermediate level targets and gauge process rather than outcomes.

The inability of small producers and agrarian reform cooperatives to obtain access to credit is a serious limitation to the adoption of PROCAFE's recommendations. PROCAFE must develop recommended technology packages for these producers which recognize their needs and delivers appropriate technologies.

For cultural reasons, male extensionists are less effective in working with women producers than female extensionists. Therefore, in order to reach a greater number of women farmers, more female extensionists should be used.

RECOMMENDATIONS

Management Issues

PROCAFE should make a concerted effort with the leaders of the coffee sector to resolve the present uncertainty over its long term funding. Once the industry has developed a common position, the sector should approach the Salvadoran governmnet with a long term financing proposal.

PROCAFE should follow through on its plans to contact international donors for possible funding, either from outright donations or from service fees for assisting projects related to the foundation's overall objectives.

PROCAFE should propose to USAID a modification of Project outputs to a level considered more attainable. Also, PROCAFE should set outcome targets for the different producer groups, such as improving profitability by a given amount, or increasing productivity to a desired level. Impact should be measured in terms of progress made toward achieving these targets.

PROCAFE should authorize the TA team to provide an organizational expert to work on behalf of the Board of Directors to review reporting and control procedures necessary to keep the board informed of PROCAFE's major activities but requiring fewer meetings and less intervention in daily activities.

USAID and PROCAFE should explore alternatives to continue TA in specific areas beyond the expiration date of the IRI contract.

Research Issues

Research should be more focused on actual farm conditions, including the capacity of producers to adopt and manage the technology recommended by PROCAFE and the relevance of the technology to those conditions. Special concern should be given to the low-resource producer and his ability to adopt coffee and diversification technology.

PROCAFE should make use of the modern information management techniques that are available to it to monitor and analyze the impact that its program and recommendations are having on the coffee sector, and utilize this information to adjust and fine tune its program.

Economic principles should be brought more fully into the research and extension decision-making process. An environmental research program for the next five years should be presented by CADIEX for approval by the Board of Directors. The research agenda should be reprogrammed to reflect the magnitude of the long-range environmental problems facing El Salvador.

Given that the CLUSA projects which support organic coffee production are scheduled to terminate in the near future, PROCAFE should consider incorporating this technology into its extension program.

PROCAFE should educate its research technicians on how to use the GIS to help design, implement and evaluate research projects.

PROCAFE should establish a "dual career path" personnel policy for research technicians.

Technology Transfer Issues

The productivity of Technology Transfer Agents should be improved. Suggested alternatives include reducing the administrative burden, more efficient scheduling and to use group leaders to amplify the efforts of extension agents.

PROCAFE needs to examine its information reporting system. Consideration could be given to creating databases of agent activities and client characteristics which could be used to satisfy information requests as they occur, rather than to generate reports which could answer questions, should they come up.

PROCAFE needs to develop a "graduation plan" for its clients, and particularly for the small producer groups that it is creating.

In an attempt to circumvent the credit problem faced by small producers and agrarian reform cooperatives,PROCAFE should consider providing recommendations to these producers which are more responsive to farm conditions (e.g. labor intensive) and which require minimal credit, and/or it should seek to align itself with other programs which can provide the needed credit.

PROCAFE should change its hiring policies to actively encourage the employment of female technicians. A gender issues course for PROCAFE's upper and middle managers as relates to women extensionists would also be useful.

LESSONS LEARNED

With considerable assistance from the Project, PROCAFE is rapidly evolving into a model of privatized research and extension. However, given the over-riding need for institutional development in the transition from public institution to a private organization, more emphasis should have been given in the project design to the management and organizational development of PROCAFE.

The small producer group methodology has proved successful. This has been an effective method for attracting women participants in the extension program, at about the same rate as women are present in the coffee producing population.

One implementation practice which has proved counterproductive is the near exclusive focus on new small coffee producers as clients. The extension agents focus on recruiting new clients with insufficient consideration for continuing services to established clients. To achieve the unrealistic targets established in the Cooperative Agreement, PROCAFE has adopted a strategy of a rapid turnover of its client base, which is clearly not in the best interest of the coffee sector.

Process indicators may be useful for the day-to-day project management but impact indicators are necessary to determine effectiveness and for informed decision-making as to when technical services can be discontinued.

The potential exists to develop a powerful set of information tools from the databases used in conjunction with GIS activities.

In working with small producers, PROCAFE has learned three important lessons: 1) They have compelling social needs which go well beyond technical recommendations concerning coffee production; 2) the most appropriate strategy for small producers is diversification, which uses coffee as one important component; and 3) these producers have clear difficulties in obtaining credit and in adopting recommendations which require purchased inputs.

PART ONE

INTRODUCTION

A. PURPOSE OF THE EVALUATION

The evaluation was carried out to review PROCAFE's ability to support coffee research and extension and the structure of its research and extension programs; to indicate the benefits derived from both research and extension and to estimate the effects of Project-sponsored technology. Principal areas of interest were PROCAFE's organization, administrative capability and management of its research and extension programs and the sustainability of PROCAFE without external donor assistance.

The evaluation was also carried out to assess the impact of the Project on the coffee industry, beginning with the general impact on the national economy and ending with the specific impact on farm families. Specific areas of concern to the evaluation were a) the impact of the privatization of coffee research and extension on the coffee industry, b) the performance of the coffee sector as a whole, and the effect of the Project on revitalizing it, c) the impact at the farm level of Project activities on small farmer operations and the well-being of small farm families, d) the importance of PROCAFE's technical services to the coffee sector and the internal growth and development of PROCAFE as an organization, and e) the adequacy of Project inputs and PROCAFE's ability to manage them.

B. METHODOLOGY

The evaluation was carried out by a three-person team over a four-week period during October-November, 1995. The team was headed by an Evaluation Specialist with extensive experience in USAID project evaluations and with a strong background in agribusiness management. The second member worked as the team's Agricultural Research Specialist. This individual has worked for USAID as a direct-hire employee and as a contractor, managing a large coffee production and export project in Guatemala. He now owns a gourmet coffee processing and exporting company in Guatemala. The third team member was the Sustainable Agriculture Specialist. This person has extensive experience with rural cooperatives and small farmers, and in recent months he has participated in three different evaluations of USAID projects in the Salvadoran agricultural sector. He combines a teaching career in sociology with work in international development.

The team was based in the city of San Salvador and traveled extensively throughout the country while carrying out the field work required for the evaluation. Field work included visits to coffee farms and processing plants, interviews with large producers, small farmers, cooperatives, agribusiness operators, USAID officials, specialists from the technical assistance team provided by the International Research Institute (IRI) and PROCAFE, the implementing organization.

A copy of the evaluation scope of work is attached in Annex V.

C. STRUCTURE OF THE REPORT

The report is composed of an Executive Summary and four major sections: Part One, Introduction; Part Two, Analysis and Results, and Part Three, Conclusions, Recommendations, and Lessons

Learned. Report annexes are Annex I - Tables; Annex II; Graphs and Figures; Annex III - Persons Contacted; Annex IV - Bibliography; Annex V - Scope of Work.

D. PROJECT BACKGROUND

In the late 1970s El Salvador was among the leading nations of the world in the application of coffee production and processing technology. This leading position was reflected in the high production yields, profitability and premium quality of Salvadoran coffee sold in world markets. El Salvador's position as coffee producer and exporter deteriorated rapidly during the 1980s as the result of civil conflict, government control over export marketing and the change in ownership of the larger coffee farms and many processing plants brought about by the Agrarian Reform law enacted in 1979. One of the casualties of the general deterioration of the industry was the Salvadoran Coffee Research Institute (ISIC) which had played a large role in the industry's earlier pre-eminence. Paralleling the decline of many other government agencies, by the end of the 1980s ISIC had become politicized, under-funded, and ineffective.

The new government administration which came into power in 1989 began a concerted effort to reverse the decline of the Salvadoran coffee industry. In 1990, coffee marketing was once again placed in private hands and policies implemented to effectively remove the government from the commercial side of the industry. Table 1 of Annex I shows the changes in coffee area, production and crop yield from 1970 - 1995.

Despite favorable policy by government to encourage coffee production and a favorable climate within the banking sector for credit to the larger producers and exporters, it was soon recognized that the coffee industry could not achieve its full economic potential without technological advances to rapidly bring about quality and productivity improvements. It was believed that without premium quality and high productivity, El Salvador would not be able to compete effectively in international markets.

It was against this backdrop that USAID launched the Coffee Technology Transfer Project (519-0362) in April, 1992. The five-year Project was designed to revitalize the Salvadoran coffee industry by technology acquisition, technology development, and the transfer of production and processing technology to coffee producers. The overall purpose of the Project is to improve the productivity of all producers nationwide but with special emphasis on small producers. Productivity improvements are expected to result in increased rural employment, greater income for coffee producers and increased foreign exchange earnings.

Seven months before the initiation of the Project, the Government of El Salvador (GOES) authorized the creation of a private foundation to replace ISIC as the national organization for coffee research and extension. The Salvadoran Coffee Research Foundation (PROCAFE) was launched in October, 1991, simultaneously with the elimination of ISIC.

The Coffee Technology Transfer Project provided a $12 million grant to PROCAFE over a five-year period, but was initiated only after the Salvadoran Congress legislated a retention of US $1.00 per hundredweight (cwt) of coffee exported to finance PROCAFE's core operating costs. Under the

Grant Agreement PROCAFE is obliged to generate counterpart funds from coffee exports in an amount of $11.25 million over the five-year Project life. The USAID grant covers the costs of vehicles and equipment, training of coffee producers, processors and PROCAFE employees, the construction cost of PROCAFE's offices and also funds international team of experts to help PROCAFE carry out research and extension and administer its program. Bridging funds were also provided under the grant to finance PROCAFE's operating costs from its creation until the export retention mechanism was in place.

Table 2 of Annex I shows the current status of funding obligations for the Project.

E. PROCAFE

1. Recent History

PROCAFE's origin springs from El Salvador's five year economic and social development plan launched by the government administration which took office in 1989. The plan called for the end of state competition with private business and the removal of most of the constraints to the private sector to fully carry out its functions. In October, 1990 the GOES privatized coffee extension services by closing the Salvadoran Coffee Research Institute (ISIC), a dependency of the Ministry of Agriculture (MAG) and by simultaneously creating PROCAFE, a private foundation, in its place. All industry participants including private individuals and companies, cooperatives, and cooperative unions could become members of the foundation by paying a nominal inscription fee of ¢100. Initial membership was 179 private producers and 14 coffee cooperatives. Membership has steadily increased since PROCAFE's creation, and today stands at 308 private individuals and organizations, and 19 cooperatives.

Most of the assets previously owned by ISIC were leased to PROCAFE by the Ministry of Agriculture. Many ISIC employees were hired by PROCAFE. The office building which PROCAFE currently occupies was leased from MAG for an initial period of 5 years. PROCAFE's Board of Directors was organized with members drawn from the four major industry associations: The Salvadoran Coffee Growers Association (ACS), the Salvadoran Association of Coffee Processors and Exporters (ABECAFE), the Union of Private Coffee Growers of El Salvador (UCAFES), and the Union of Agrarian Reform Cooperatives, Coffee Processors, Coffee Producers, and Coffee Exporters (UCRAPROBEX).

After PROCAFE was legally organized and had developed a five-year operating plan acceptable to USAID, in May, 1992 the latter provided a draft Cooperative Agreement for implementing the five-year Coffee Technology Transfer Project. The final agreement was signed on July 27, 1992 at a public ceremony by the Board President and USAID/El Salvador's Mission Director.

PROCAFE's operating costs and many of its capital investments are paid by a special "dólar-café" fund created through the retention of $1.00/cwt of coffee exported. This counterpart fund is controlled by the Salvadoran Coffee Council (CSC). The "dólar-café" retention was legalized by Legislative Decree No 265, published on July 14, 1992.

2. PROCAFE's Organizational Structure

PROCAFE's current organization is shown in Figure 1, Annex II. Final authority over the Foundation's activities rests with the General Assembly, composed of member-subscribers who meet at least once a year. The primary responsibility of the General Assembly is to elect the Board of Directors and to approve the annual operating plan. The Board of Directors is responsible for general policy and overall direction of the Foundation. The Board is composed of two representatives from each of the four coffee Associations, as well as PROCAFE's General Manager. The USAID Project Officer who manages the Coffee Technology Transfer Project sits on the Board as observer. General administration is carried out by the General Manger, although with heavy guidance and control over daily operations exercised by the Board. The General Manager is supported by the international technical assistance (TA) team provided by the International Research Institute, Inc. (IRI), under contract with USAID. PROCAFE's day to day operations are carried out by seven departments: a) Technology Generation and Transfer, b) Administration and Finance, c) Information Services (Computers), d) Communications, e) Economic Studies and Planning, f) Technical Library, and g) Geographical Information System (GIS). A classification of PROCAFE personnel by job category is shown in Figure 2, Annex II.

The CADIEX Advisory Committee on Research and Extension is composed of coffee producers and processors who serve as a voluntary council of outside advisors. The Strategic Development Committee includes members of the TA team and senior PROCAFE employees. This committee was created primarily to advise the General Manager on matters related to strategic planning and the long-range development of the organization.

PROCAFE's key operating department is Technology Generation and Transfer. This unit was originally organized as two separate departments, but after a general reorganization in July, 1995 they were merged into a single unit to improve coordination between research and extension activities. Technology Generation (research) is carried out by technicians under the direction of a coordinator. Research activities cover the following functions: a) Production Systems, with responsibility for coffee farm renovation, soil protection and the recuperation of soil productive capability, environment and crop diversification; b) Plant Protection, which promotes integrated pest management techniques to combat numerous pests including the coffee borer; c) Analytical Services, which provides laboratory analyses of soils, water and plants, and monitors the quality of agrochemicals; and d) Genetics and Quality Improvement which is responsible for developing improved plant varieties, better planting material, and improved methods of coffee processing.

PROCAFE's research effort serves coffee producers by providing: diagnoses of insect and pest problems and recommended alternatives for their control; seed and planting material of proven genetic quality; and analytical services on soils, water, plants, and agrochemicals. Adaptive research is carried out on 48 demonstration plots located on privately-owned farms and cooperatives in all important coffee growing regions of El Salvador.

Technology transfer (extension) is carried out under the overall direction of a coordinator by 52 extension agents operating from 13 field offices located in three regions covering the entire country. Regional offices are located at Santa Ana, Santa Tecla (New San Salvador) and Santiago de Maria.

The field offices are supported by two central departments responsible for technical assistance, validation, and technical training of coffee producers and PROCAFE employees.

The purpose of Technical Assistance and Technology Validation is to convert research results into profitable, "user-friendly" technology recommendations easily applied by coffee producers.

The Training Department provides training to coffee producers and PROCAFE employees as a means of improving producer incomes, with particular attention to small and medium coffee growers.

The Communications Department's main role is to strengthen PROCAFE's ties with its constituency. The department develops and implements publicity campaigns as required to promote specific PROCAFE programs and provides training material for research and extension activities and technical information for the producer.

Economic Studies and Planning supports PROCAFE's research and extension services by developing financial and economic models of different size coffee farms, and by analyzing the cost-benefit effect of recommended agricultural practices. The department serves the coffee sector by making annual projections of national coffee production and by carrying out sub-sector analyses as required. This department also maintains information data bases related to coffee production, processing, and exports and is presently spearheading the development of PROCAFE's five year plan covering 1996 - 2000.

Administration and Finance provides administrative support to PROCAFE in human resources, finance, materials control and general services. The Finance Department is responsible for financial management and control, accounting, financial reporting and the administration of PROCAFE's financial authority policy. Materials and General Services is responsible for materials purchases, inventory control, maintenance of vehicles, buildings and equipment, security and office services. Human resources is responsible for personnel actions including recruitment, salary administration, employee relations and benefits programs.

Information Services was created as a resource base for computer hardware, software, and information systems. This department plans computing resources and is responsible for the acquisition of computer hardware and software.

The "Ing. Félix Choussy" technical library is the only national library in El Salvador specializing in coffee. The library contains technical materials including those produced by ISIC. The library maintains ties to research centers in other countries and will soon have access to international data bases through a satellite network.

The Geographic Information System (GIS) is a powerful information tool which combines data base resources with mapping capability. Mapping of coffee growing areas is based on cadastral information at a scale of 1:5000 and on modern satellite global positioning technology. This Department also monitors water quality in major rivers at a number of run-off locations near coffee processing plants.

F. PROFILE OF SALVADORAN COFFEE PRODUCTION

The profile of El Salvador's coffee production is summarized here because an understanding of the size and structure of the sector is needed to determine the potential impact of the Project.

Reliable, accurate and timely information on Salvadoran coffee producers and national coffee production area is not available. The information evolving from the GIS Department will ultimately provide a clear picture of the sector, but complete information will not be available for several more months, if not years. The most recent systematic determination of area in production was made by ISIC in 1977, based on a planimetric analysis of aerial photographs which were verified by field visits. The latest comprehensive source of information on coffee farmers is the registry of producers made by the National Coffee Institute (INCAFE) in the mid-1980s. This registry includes the name, area in production and amount of coffee produced by all farmers who received services from INCAFE. Information on national production is also available from a socio-economic survey of coffee producers made by PROCAFE in November, 1992. The survey covered 965 farms on 32,526 manzanas, or about 24% of the estimated total area in production nationwide. The survey made no differentiation between privately owned farms and production cooperatives.

Information from the 1992 survey was blended by PROCAFE with other data to create a profile of the coffee sector. However, the final report was never published because the results could not be independently verified and because some of the conclusions were politically sensitive. The following profile draws heavily on PROCAFE's unpublished information, and is presented as currently the best available information on the Salvadoran coffee sector.

Number of coffee producers nationwide: The total number of people engaged in coffee farming in all of El Salvador is estimated to be about 37,900 individuals. Of this total, approximately 20,000 members are associated with cooperatives belonging to the Union of Coffee Producers, Processors and Exporters, UCRAPROBEX. Private producers number about 17,900, based on the growers registered by the Emergency Loan Fund which provided emergency producer financing during the low market prices from 1991 - 1993. Of the private growers, an estimated 925 are considered to be large farmers whose farms are over 50 manzanas in size. Approximately 12,400 independent farmers are classified as either small (farm size less than 20 manzanas) or medium scale (20 - 50 mz). In addition, some 4,500 farmers are members of processing cooperatives associated with UCAFES, the Union of Coffee Producing Cooperatives of El Salvador. The vast majority of these are also classified as small or medium scale farmers.

The estimated total number of coffee producers in El Salvador, by size, is shown in the following table. Note that in the table, each of the 103 large-scale production cooperatives associated with UCRAPROBEX is counted as one producer and the private growers associated with UCAFES are distributed according to their farm size.

Estimated Total Number of Coffee Producers in El Salvador, by Size

SMALL (< 20 MZ)	MEDIUM (10-50 MZ)	LARGE (> 50 MZ)	TOTAL
14,060	2,909	1,031	18,000
78%	16%	6%	100%

Source: El Salvador Coffee Subsector Analysis, Appropriate Technology International, September, 1994

Land area in coffee production: Estimates of the total estimated area in coffee production ranges from 230,000 to 255,000 manzanas. The best estimate is that about 235,000 manzanas are currently in cultivation. Total production and crop yield based on this estimate are shown in the following table:

Estimate of National Yield Based on Actual Production and an Assumed Area in Cultivation of 234,650 Mz (1990 - 1995)

YEAR	PRODUCTION (CWT)	YIELD (CWT/MZ)
1990/91	3,345,500	14.25
1991/92	3,000,000	12.78
1992/93	3,917,300	16.69
1993/94	3,117,000	13.28
1994/95	3,061,400	13.04
1995/96	3,500,000 (e)	14.91 (e)

Source: PROCAFE, based on November, 1992 socioeconomic survey.
(e): Estimated

Area in production according to quality classification: The following table shows the percentage distribution by the number of farms, area planted and production according to the quality classification of the coffee grown, which is a function of altitude. Note that only about 15% of the coffee produced in El Salvador is classified as Strictly High Grown, which commands premium prices on world markets.

Percentage of Farms, Cultivated Area, and Production by Quality Classification of the Coffee Grown

	LOW ALTITUDE (<800 METERS)	HIGH GROWN (800-1200 M)	STRICTLY HIGH GROWN (>1200 M)	TOTAL
Number of farms	-36.68%	32.23%	10.78%	100.00%
Area in coffee	39.14%	49.80%	11.06%	100.00%
Production	32.23%	53.03%	14.74%	100.00%

Source: PROCAFE, based on November, 1992 socioeconomic survey.

Farm size, and production by size: PROCAFE's survey results showed that less than one-fourth (22.8%) of the farms have more than 50 manzanas, but these farms produce more than three-fourths (77%) of all coffee produced nationwide.

Number of Farms, Cultivated Area, and Production by Farm Size (1992 - 1993)

FARM SIZE (MANZANAS)	PERCENTAGE OF EACH SIZE	ESTIMATED FARM AREA		CROP PRODUCTION		CROP YIELD
	%	MZ	%	000 CWT	%	CWT/MZ
Less than 5	38.34%	6,063	2.58%	74	1.88%	12.15
5 to 10	12.75%	6,040	2.57%	85	2.18%	14.14
10 to 20	11.30%	10,810	4.60%	158	4.04%	14.64
20 to 50	14.82%	33,088	14.08%	585	14.95%	17.70
50 to 100	10.78%	51,277	21.82%	977	24.93%	19.05
More than 100	12.02%	127,722	54.35%	2,038	52.02%	15.95
Total country	100.00%	235,000	100.00%	3,917.00	100.00%	16.69

Source: PROCAFE, based on November, 1992 socioeconomic survey and 1993 production data.

G. THE IMPORTANCE OF COFFEE TO THE SALVADORAN ECONOMY

Coffee is the single most important crop to El Salvador in terms of production, exports, foreign exchange and employment. International coffee prices impact directly on domestic prices, which demonstrates the vulnerability of the Salvadoran economy to the international coffee market. The general reduction in coffee prices to the farmer since 1979 has impacted on the profitability of coffee farms and the ability of coffee farmers to invest and maintain their farms. Annex I, Table 3 shows historical prices for El Salvador coffee exports from 1970 to 1995.

Coffee is still the single most important export crop from El Salvador, although its importance has declined in recent years. In the early 1980s coffee averaged about 50% of total exports. The relative

importance of coffee dropped substantially, to 36% of exports in 1990-91, and further declined to 28% of exports in 1991-92. At current prices ($125/cwt, FOB port of export) coffee provides an annual export revenue of approximately $400 million annually. Annex I, Table 4 shows the variation in export earnings since 1970.

Employment generated by coffee production is extremely important to the economy of El Salvador. Labor accounts for approximately two-thirds of the cost of harvested coffee. PROCAFE estimates that each hundredweight of finished coffee ("oro") requires 9.5 workdays for cultural practices and 1.5 workdays for harvesting the crop, or a total of 11 workdays per hundredweight. The 1994/95 crop produced 3.06 million hundredweight and generated approximately 33.6 million person-days of work, which equates to nearly 135,000 jobs (using the standard conversion of 250 work days per job). The impact on rural income from the 1994/95 crop was about ¢726 million. Annex I, Table 5 shows the historical impact of coffee on employment generation.

In 1980, coffee accounted for approximately 9% of El Salvador's gross domestic product (GDP). By 1994 the importance of coffee had declined to about 6% of GDP. The decline was caused by a number of factors, including the abandonment of coffee farms and the migration from rural to urban areas during the 1980s due to the civil war; the intervention of the Salvadoran Coffee Institute (INCAFE) in international coffee commerce until 1989 and the corresponding reduction in producer income; and low coffee prices registered over a prolonged period from 1976 - 1992. Annex I, Table 6 shows the importance of coffee to the Salvadoran economy, based on GDP.

PART TWO

ANALYSIS AND RESULTS

A. PROJECT MANAGEMENT ISSUES

1. PROCAFE'S Management Effectiveness

The challenge to PROCAFE's Board of Directors and its management team for the past three years has been to transform the organization from a government agency into a privately-managed, responsive service organization. PROCAFE took root through ISIC, a government institute, and its transformation has not been entirely smooth. Initially, all PROCAFE's assets and most of its staff were transferred from ISIC. Many of the previous government employees made the successful transition to become valuable, productive members of a private service organization, but others did not. The process of change has been difficult, as registered by high management turnover. All major departments within the PROCAFE organization have seen at least one - often more - changes in senior management. The greatest challenge has been to replace the "old guard" attitudes and work habits with new energy and effectiveness, without losing the critical mass of technical skills brought from ISIC. Organizational change has been imposed primarily through the initiative of the Board of Directors, who represent the interests of the coffee sector. The TA team has also acted as a catalyst in bringing about positive change.

With a few possible exceptions, this process of organizational change appears to be nearing completion. The transformation of PROCAFE into a truly private organization has undoubtedly been the greatest accomplishment PROCAFE's Board of Directors, its management team and USAID. Overall, the evaluation team is impressed by the progress made by PROCAFE toward becoming a capable coffee research and extension organization.

2. PROCAFE's Capability to Plan and Manage

PROCAFE's basic planning tool is its five-year strategic plan. Development of the 1993 -1997 plan was a prerequisite to the Grant Agreement for the Coffee Technology Transfer Project. PROCAFE is now in the final stages of completing its new strategic plan covering the period 1996-2000. A second planning tool of shorter duration is the annual plan of operations. This is configured within the guidelines of the five-year strategic plan. The annual plan is published each December and provides detailed budgets and performance goals for the coming year. Successful completion of its annual operating plan is a key requirement of PROCAFE's ten-year technical services contract with the Salvadoran Coffee Council (CSC) and is the mechanism for recovering "dólar café" funds. Both the strategic plan and the annual operating plan must be approved by the General Assembly as well as the Board of Directors.

Monitoring of performance against budget is done by means of monthly operating summaries which compare actual monthly performance and year-to-date actual results with budget expectations.

PROCAFE's planning and budget management are sound. All employees have personal performance objectives and targets which are linked to the Foundation's goals. PROCAFE's employees are contracted on a year-to-year basis and decisions on personal service contract renewals and merit salary increases are based in great part on the employee's performance in meeting annual targets.

One aspect of PROCAFE's administration is viewed by the evaluation team as being dysfunctional to the overall performance of the organization: PROCAFE's Board of Directors has evolved into an administrative committee, immersed in operating minutiae to an extent far greater than the norm. This may be the natural inclination of concerned board members closely tied to the coffee industry who feel responsible for an organization of great importance to the sector. The Board approves PROCAFE's annual operating plan and budget and also approves most substantive personnel and administrative decisions required to carry out the plan. The outcome is weekly, marathon board meetings and a top-heavy, bureaucratic decision-making process which slows down operations and limits management flexibility and initiative, as well as subjecting the organization to the administrative burden of preparing interminable reports for the Board. The team believes that PROCAFE would be a much more effective organization if greater authority was delegated to the management team. One possible means of making the transition to greater management authority would be for the TA team to provide an organizational expert to work on behalf of the Board for a short period to review reporting and control procedures necessary to keep the Board informed of PROCAFE's major activities but requiring fewer meetings and less intervention by the directors into PROCAFE's daily activities.

Conclusion: PROCAFE has made good progress toward becoming a capable coffee research and extension organization. Its planning and budget management are highly effective, but the Board of Directors is too deeply involved in the day-to-day activities of the organization.

Recommendation: PROCAFE should authorize the TA team to provide an organizational expert to work on behalf of the Board of Directors to review reporting and control procedures necessary to keep the board informed of PROCAFE's major activities but requiring fewer meetings and less intervention in daily activities.

3. International Technical Assistance

International technical assistance (TA) is provided under contract with the IRI Research Institute, Inc. (IRI) of Stamford, Connecticut. The contract began on July 15, 1993 and the Chief of Party arrived in El Salvador one month later. Technical assistance became available a little more than a year after the Cooperative Agreement between USAID and PROCAFE was signed. Under the contract, IRI is to provide a total of 378 person-months of effort by a combination of direct employees, consultants, and subcontractors. Technical assistance to be provided by long term advisors based in El Salvador amounts to 231 person-months; short term technical assistance (STTA) to be provided by consultants on temporary duty in-country amounts to 112 person-months, and IRI home office support is planned at a level of 35 person-months.

A comparison of the contracted level of technical assistance for the entire Project with the amount used to date is shown in Annex I, Table 8.

IRI has provided effective, timely technical assistance. PROCAFE evaluates the former's performance at an overall score of 80 (on a scale of 100). Two of the ten long term advisors initially provided by IRI were not satisfactory and had to be removed, and PROCAFE's board is currently deciding on the best course of action to take with a third advisor whose performance they view as marginal. A few mis-matches have occurred with short term advisors as well, but PROCAFE recognizes that in some cases the work requirements were not clearly defined and that some technical advisors have been fielded whose skills did not fit actual requirements.

Although the TA team is depicted as a self-contained unit on PROCAFE's organizational chart (see Annex II, Figure 1), in reality, individual team members are assigned to departments according to their professional specialty and work primarily with their departmental counterpart. Interaction between IRI team members appears to be relatively limited. While individual specialization is important, the evaluation team believes that the IRI advisors would be more effective if they sometimes worked as an integral unit on far-reaching issues of special importance to PROCAFE. This effort would be extremely beneficial in strategy and policy development. This would not represent a radical departure from the current services provided by the IRI team and could represent a real benefit to PROCAFE for the rest of IRI's contract period.

The evaluation team believes that on balance, PROCAFE's organizational development would have been considerably less without the TA team; some of the people interviewed made the point that PROCAFE could never have evolved into an effective research and extension organization without the assistance that has been provided. Certainly the impact of TA has been positive, and has been extremely important to PROCAFE's success. The TA team has enhanced PROCAFE's research methodology by providing expertise in information management, as well as environmental and economic criteria in research and extension. The team has also facilitated the implementation of the Board's mandate for applied research. Furthermore, as an added benefit, the relations between the TA team and PROCAFE's management are good.

The total cost to USAID for the 378 person-months of TA scheduled under the contract is $5,099,780[1], which is the equivalent to $622.68 per person-day. This is more expensive than many other USAID projects. However, the TA team has satisfactorily carried out its responsibilities under the contract and in terms of its positive impact on PROCAFE, has been highly effective. The conclusion of the evaluation team is that USAID is receiving good value for the money spent on technical assistance.

PROCAFE would like, if possible, that technical assistance continue to be provided in specific areas beyond the current expiration date of the TA contract with IRI. These areas include the Geographic Information System (GIS) and environmental/ecological monitoring and evaluation, including soils analysis and interpretation. Further international assistance will also be needed on a limited basis to solve specific problems in coffee processing. In order that momentum not be lost in these important

[1] This amount corresponds to the total amount of the IRI contract, less the amount budgeted for commodities purchases and the budgeted cost of local staff. One person-month equates to 21.67 person-days.

areas, USAID and PROCAFE should explore ways to provide specific international TA beyond the current expiration date of the IRI contract.

Conclusion: Although the TA provided by IRI is more costly than many USAID projects, on balance it has been effective. The evaluation team believes that USAID is receiving good value for the money spent on technical assistance. In order to consolidate the advances made to date in some specialized areas, additional international TA will be needed beyond the expiration date of the IRI contract.

Recommendation: USAID and PROCAFE should explore alternatives to continue TA in specific areas beyond the expiration date of the IRI contract. Areas where continued TA is needed include GIS, environmental services, and occasional problem-solving or technology transfer for coffee processing.

4. Adequacy and Movement of Inputs to the Project

The slow delivery of vehicles and computers has had a negative impact on PROCAFE's performance, especially in extension activity. Annex II, Table 9 tracks the delivery of vehicles and personal computers (PCs) to the Project over the three year period from 1993-1995. Clapp and Mayne handles procurement of vehicles and computers, and IRI handles all the rest.

The reasons for the procurement delays have been a) Buy America regulations, which have forced PROCAFE to purchase U.S. - made vehicles which they feel are poorly suited to local conditions, and has made it necessary to apply cumbersome U.S. procurement regulations; b) USAID's procurement regulations require a lead time of at least six months for delivery of the commodity, and c) inadequate planning by PROCAFE in the face of excessive lead time. These are explained as follows:

PROCAFE began operating in 1992 with a few used vehicles borrowed from ISIC. In 1993, USAID provided six pickup trucks and six computers through the SETEFE Project, procured with PL-480 funds. The first four vehicles procured under the Coffee Technology Transfer Project arrived in November, 1993. This purchase was expedited because the TA team was already in place in San Salvador, without work vehicles. The first large-scale delivery was 12 Ford pickups in February, 1994. This was followed by 37 Jeep vehicles which arrived in March and April the same year. Some of the delay in delivery was due to miscommunication of procurement issues between USAID and Clapp & Mayne, and some because of a strike at the Chrysler Plant where the Jeeps were produced. The purchase of passenger vehicles and pickup trucks was complemented by the purchase of thirteen motorcycles, bought locally after USAID waived the Buy America regulation.

The remaining twenty-three vehicles purchased with Project funds will be delivered during December, 1995. The reason for their late arrival is because at the beginning of 1995, PROCAFE's Board petitioned USAID to waive the "Buy America" rule which would permit the local purchase of small, four wheel drive vehicles more suited in El Salvador's coffee growing areas than large U.S.-made pickup trucks. PROCAFE's request for a waiver was eventually denied, with the result being that the torturous process of U.S. procurement had to be started at a later date.

PROCAFE received its first order of imported computers and peripheral equipment in June, 1994. This was followed by the local purchase of eight sets of U.S.- made computer equipment from a local supplier during the last half of 1994. However, this purchasing convenience was lost in 1995 as a result of the procurement rule which requires that computer equipment and peripheral purchases of more than $100,000 (cumulative value) be approved by the Office of Information Resources Management (IRM/CIS) at USAID/Washington. In order to comply with this rule a full-blown computer study must be carried out for the Project, and the recommendations submitted to USAID/Washington for IRM approval. The study is now in progress and is expected to be completed during December, 1995. By the time the final report is approved and the computer equipment ordered, more than a year will be lost. Meanwhile, none of PROCAFE's field offices have computer equipment.[2]

The delivery times of project vehicles and computer equipment is shown in Annex II, Figure 3. While the problems described here are probably no worse than many other USAID projects, they do highlight the delays, inefficiencies and frustration which results from top-heavy, antiquated procurement regulations. One can only hope that "re-engineering" will ultimately benefit those subjected to USAID's procurement process.

Conclusion: The slow delivery of vehicles and computers has had a negative impact on PROCAFE's performance, particularly in its extension activity.

B. THE RESEARCH PROGRAM

PROCAFE's research program reflects the changes required to meet the demands placed upon it by the private sector. This transition, however, is not complete and further modifications to the program must still be made. In the short period since its creation, PROCAFE has been able to reorient much of its research activity to the needs of the coffee growers and achieve the subtle change in purpose from that of generating knowledge to one of generating information. The key elements which have enabled PROCAFE to achieve this new focus have been:

a. A methodology for establishing research goals and priorities
b. Greater integration of research and technology transfer
c. Improved administration and management for increased efficiency

[2] IRI made the following observation on the procurement issue: "In discussing the movement of inputs, it should be mentioned that the terms of the implementation agreement specified that no procurements of office, laboratory or field equipment could be made, until a contract agreement was reached with the Ministry of Agriculture on use of the present ISIC facilities until such time that they could be replaced by PROCAFE. Such a contract agreement was concluded and approved by USAID in March, 1994. Other than the order for the 51 vehicles, no procurement actions could be initiated until March, 1994."

1. Research Goals and Priorities

a. The Process

PROCAFE has established research goals and priorities through a process of consultation between the coffee sector and its technical personal. The important innovation that this process represents is that the client group (the coffee producer) identifies the major problems it faces, and which are likely to be solved or ameliorated through research, and the program is detailed with the task of finding solutions.

Coffee producers are represented by two units in PROCAFE's organizational structure: the Board of Directors and the Advisory Committee on Research and Extension (CADIEX). Both units are composed principally of representatives of private independent, private cooperative and agrarian reform cooperative producers. Earlier this year the Board of Directors approved the following policy guidelines recommended by CADIEX which governs PROCAFE's research program:

a. Research will emphasize **rapid results** which are applicable to **actual farm conditions**
b. The **economic aspects** of coffee production technology will guide research and recommendations
c. Research will provide guidance for **small farm diversification**
d. Attention will be given to the **quality of coffee and of the environment**

Annex II, Figure 4 highlights the research guidelines recommended by CADIEX.

In order to translate these directives into comprehensive research activity, in July, 1995 PROCAFE reorganized its Research Division into three research Programs: Genetics and Quality Control, Plant Protection and Production systems. At the same time PROCAFE created a technical committee, comprised of the Director of Research and Extension, the three Program Directors, the Director for Technology Transfer from each of the three geographical regions and the Director of Training, to review the overall and annual research program submitted by each unit and to select those activities which are consistent with the criteria indicated above, as well as personnel and budget constraints.

PROCAFE carries out subjective evaluations of problems affecting the entire coffee sector and also develops methodologies for quantifying the impact of plant and disease problems on coffee production, cost and quality, and for using the results to establish research priorities. Thus far only the Plant Protection Department has produced an estimate of the quantitative impact of major problems in its area of responsibility. The prioritization of its research program based on these results is shown in Annex II, Figure 5.

PROCAFE's research program draws heavily on the wealth of information generated previously by ISIC. There is little or no "basic" research being done presently. Major focus is on validation trials of known technology: for example, the Genetics Department is searching for the best combination of five varieties of coffee trees with two varieties of rootstock to achieve resistance to soil borne pest and disease problems; the Plant Protection Department is testing systems which integrate chemical

and biological controls; and the Production Systems Department is looking at alternative fertilizer and diversification strategies.

While recognizing that there has been much progress in establishing criteria and goals for defining the research program based on **problem** identification and measurement, there must be a complementary methodology for identifying valid **solutions**. Small, medium and large coffee producers face similar production problems, yet the solutions to many of them are scale specific. The focus on the problem rather than the solution results in an inherent bias toward the "technological" recommendation which may only tangentially address the specific needs of the low-resource coffee producer operating small and medium size farms. In other words, research offers the "best" solution, but the producer must modify the conditions of his farm enterprise to accommodate that solution. For some segments of the sector this approach is acceptable. The recommendations, when taken in and of themselves, do offer valid solutions to technical problems and it is generally accepted that increases in productivity and income require, *sine qua non*, changes in the production system. However, in the case of the low-resource farmer it is not a question of not wanting to implement the recommendations, but rather of not being able to finance and/or manage them.

Yet, too often the researcher and transfer agents wash their hands of responsibility for a failure to achieve the final, critical step: technology adoption. Typically, blame is cast on the limiting conditions imposed by formal and/or informal financial system, the market structure and culture and tradition. However, "true" solutions are only those which are consistent with the realities of the coffee sector in general, and those of target sub-sectors in particular.

Conclusions:

PROCAFE management has given priority to solving important problems in the coffee sector. Its mandate is to rapidly and efficiently produce technology which will result in increased productivity and farm income.

PROCAFE is developing an effective and efficient administration to support its primary functions: technology generation and transfer.

PROCAFE has incorporated the principal players from the coffee sector into its Board of Directors and Advisory Council, thus providing a forum for private sector participation.

If, *a priori*, the research and extension institution is aware of conditions which will impede the adoption of the technical recommendations it offers as solutions, then it is not really offering solutions.

The CADIEX guidelines are explicit in that PROCAFE's recommendations must be consistent with the economic and technical conditions of the farm enterprise. To comply with these guidelines, the researcher must differentiate among the distinct segments of the coffee sector and determine the needs and capabilities of each. This requires a methodology which goes farther than the current mechanism for ranking problems, and leads the researcher through a logical process toward defining

acceptable parameters for a potential solution, prior to initiating research. By way of illustration, consider the following simple example of the logical process:

PROBLEM: Low soil fertility on small coffee farms

SOLUTION: Soil additives to correct the problem

LOGICAL PROCESS:

a. Poor soil fertility is a serious limiting condition to small farm coffee productivity.
b. Research has determined that the application of the proper chemical fertilizers can supply required nutrients.

This is the point where the current process stops, offering generic recommendations which may not solve specific problems. The following steps are also required to solve the problem for the low-resource producer who cannot afford to buy the recommended doses of chemical fertilizer:

c. Explore the option of using organic fertilizers that can be produced on the farm which represent an acceptable cash outlay;
d. investigate coffee pulp as source of organic matter;
e. the farmer sells his coffee in cherry form (*uva* or *maduro*), therefore pulp is at the *beneficio*;
f. however, transportation costs to return the pulp to the farm are unaffordable;
g. therefore consider possible other sources of organic material produced on farm.
h. Sources which already exist in the coffee production system, e.g. shade trees;
i. organic material from shade trees may be inappropriate or inadequate;
j. therefore, investigate more appropriate shade tree for producing organic material, and
k. investigate exogenous crops to be planted as a source of organic material, which may or may not require changes in other recommendations, e.g. coffee planting density and spacing.

The resulting solutions and recommendations from the logical process are both technically and economically feasible, and appropriate within the context of the small farmers' situation. The context would have been defined before problem-solving research began.

b. The Results

A focus on problem solving has allowed PROCAFE to deliver effective technology to the coffee producer in the short period since its research program was inaugurated, and it is poised to produce further results in the next one or two years in those areas where it is now working. The following list shows the most important research activities which are generating specific recommendations and/or will probably do so in the near future:

a. Integrated control of *broca* combining chemical, physical and biological controls have allowed the producer to eliminate or reduce chemical control while lessening insect infestations and damage.
b. Introduction of grafting technology by increasing the availability of appropriate rootstock; providing training in grafting techniques and a campaign to educate producers as to the benefits it offers through its resistance to nematodes and by its capacity to establish an extensive root network.
c. Recommendations on the orderly diversification of coffee farms, which contemplate activities in association with and independent of coffee plantings.
d. Recommendations as to the rational use of fertilizers according to the needs of the plant and plantation at a particular stage in the management scheme.
e. Integrated soil management to improve soil fertility, soil chemical properties and organic composition, as well as the control of soil-borne pests and diseases.

2. Integrating Research and Extension

In response to the mandate from PROCAFE's Board of Directors to produce economically feasible recommendations consistent with on-farm conditions, PROCAFE has adopted a program of validation instead of "pure research". This orientation, coupled with the fact that PROCAFE does not have its own experimental stations, has resulted in a closer relationship between research and extension than is usually the case. Yet, PROCAFE is still very much in the throes of truly integrating its research and extension activities.

A major organizational step was taken in July, 1995 when both activities were placed under one Director of Research AND Extension. The Director views the role of research as providing the extension agent with alternatives and options from which he can choose, modify and offer to the producer to solve his specific problems. In addition, PROCAFE is developing a methodology for "networking" - e.g. providing a close interaction between the researcher, extension agent and producer in the search of solutions to production problems. Within this network the areas of responsibility are clearly defined, yet there are shared activities between the technicians with the primary focus being on on-farm application and results. This technique has proven successful in the introduction of integrated chemical and biological control of *broca*, and has eliminated the difficult steps by which research findings are translated into recommendations for the extension agent, who, in turn, interprets them for the producer. It is planned to extend this methodology next into the area of soil management.

This "network" approach to research and extension should guide the researchers toward practical and appropriate solutions. In support of this process, the Production Systems Program is responsible for facilitating the transition from research results to extension recommendations. While this function is still somewhat vaguely defined, it was indicated that its principal function will be to synthesize results and recommendations from the several research areas into production system options, which the extension agent can offer to the producer.

Presently, there is little information available to the extension agent regarding intermediate level research recommendations. For example:

- If a farm has yields of 10 *quintales* of coffee per *manzana*, are the fertilizer and other recommendations the same as for farms with yields of 40 *quintales*? Of course not; but what are the correct recommendations?
- If the cost of the recommended technology for maintaining a *manzana* of coffee in production is C$3,000 and the producer only has C$1,500, how should he spend it?

Conclusions:

PROCAFE has attempted to integrate the research and transfer functions to achieve correct solutions to significant problems. That integration process is still in progress.

PROCAFE's extension agents need a greater range of information from its researchers to better define producer options. One-size-fits-all recommendations are not valid given the diversity of the coffee sector, and the researcher must participate in defining best alternatives for farm conditions.

One of the major tools for information management available to the researcher, and extension agent, is PROCAFE's Geographic Information System (GIS). However, little use is being made of the system on a systematic basis by PROCAFE technicians. The few who take advantage of the system do so as a result of individual interest and initiative. Furthermore, the GIS is viewed by most researchers as an end product, rather than as an analytic tool to help them realize their primary objectives: the generation and transfer of technology to increase coffee productivity and quality and producer incomes. There seems to be a lack of understanding as to the use and value of the system, especially at the level of department heads, who have not yet incorporated it into their planning agenda and research program. Impact monitoring and analysis, which should be programmed and required as part of each department's activities, could be greatly facilitated and enhanced by incorporating the GIS into the process. For example:

- Integrated *broca* control is felt to be successful by both technicians and producers; data on thousands of *parasatoide* liberations have been introduced into the GIS; yet, the Plant Protection Department does not conduct any systematic measurement of the effect of the recommended controls, nor of the spread and persistence of wasp populations.

- Technology Transfer does not use the GIS to efficiently program its activities with small farmers on the basis of their concentration, characteristics or location.

Finally, and for the want of a more appropriate opportunity to deal with the topic, a critical look must be given to the management of information by both the research and extension technicians. The tight focus on validation-type "research" implies that much of PROCAFE's ability to keep current with evolving coffee technology will depend on its ability to access knowledge and information generated outside of El Salvador. There are sources for this information through published and computerized networks; yet, they are not routinely consulted, in part, because both the library and the network access are located in the technology transfer section, thus complicating their use by research personnel. Obviously, when PROCAFE is housed in its new facility this inconvenience should disappear and the problem eliminated. It is imperative, however, that the researchers understand that

there will be increased reliance on imported information under the new *modus operandi* of PROCAFE.

Conclusion: Demand for the GIS has been from the individuals in the coffee sector, primarily for mapping services; PROCAFE technicians have not grasped the contribution that the GIS could make to their research and transfer activities.

Recommendation: PROCAFE should educate its research technicians on how to use the GIS to help design, implement and evaluate research projects.

3. Administrative and Management Support

Administrative and management support is a key element in PROCAFE's transition from the public to the private sector. Administrative support to research and technology transfer activities is predicated on two positive concepts:

a. Technology generation and dissemination are the principal activities of PROCAFE and the administrative function is carried out in **support** of these activities.

b. Management support is directed at **efficiently** carrying out research and extension activities to ensure that maximum benefit is derived from PROCAFE's scarce resources.

The mechanism for programming research activities within the Annual Plan and Budget gives PROCAFE's Administration and Finance Department the opportunity to introduce management criteria into the planning process and to balance proposed research activities with available resources. Once the Plan and Budget are approved the administrative department assumes the role of facilitator to assure the timely availability of financial, material and personnel resources. At the same time, administrative controls are used to periodically monitor (quarterly, semi-annually and annually) implementation *vis a vis* planned activities.

Administrative support to research and extension is improving but some bottlenecks still exist. For example, present controls over vehicle usage consume an inordinate amount of the technician's time and interfere with research responsibilities and objectives. It is planned that control procedures will be modified to the extent possible within USAID regulations to alleviate the problem. On the other hand the administrative department has adopted many of the USAID-mandated management tools and procedures and is now tailoring them to PROCAFE's needs. The recent change in the Director of Administration promises to further improve the effectiveness of its support function and the execution of its own specific responsibilities in the areas of financial, personnel and commodity management.

In the area of personnel management, PROCAFE has adopted attitudes and criteria of private sector enterprises. Wholesale personnel changes have taken place over the past two years, especially in the top administrative and technical management positions. Much of this change reflects the transition

from ISIC to PROCAFE, and the inability of former ISIC employees to adapt to the mandate and demands of the private sector.

PROCAFE is a service organization and its future success depends largely on the quality of its technical personnel. A major administrative improvement is the procedure introduced for identifying, selecting and evaluating personnel. The rigorous selection process does much to ensure the employment of competent, productive technicians. Periodic performance reviews provide the basis for personnel management and salary determinations which enable PROCAFE to compete effectively in the labor market. However, the personnel program is not completely developed. One important policy still to be applied will provide parallel and equivalent career paths for administrative and technical functions. PROCAFE suffers from an institutional flaw which it inherited from the public sector: continued economic advancement by technical personnel requires that they shift to administrative positions; otherwise they must leave the organization. A proposed "dual career path" mechanism has been presented informally to the Board of Directors, which has expressed agreement in principle. However, a program must be formalized, budgeted and adopted if PROCAFE is to successfully attract and keep quality technicians.

Recommendation: PROCAFE should establish a "dual career path" personnel policy immediately so that corresponding costs and personnel changes can be incorporated into the Five-year Strategic Plan presently under development.

C. TECHNOLOGY TRANSFER

1. Client Base

PROCAFE serves clients with many different institutional arrangements:

a. Collectively managed agrarian reform production cooperatives which are members of UCRAPROBEX, a second-level cooperative union providing coffee marketing services;
b. collectively managed agrarian reform production cooperatives not affiliated with UCRAPROBEX;
c. individually operated farms belonging to private cooperatives which are affiliated with UCRAPROBEX;
d. independent small, medium, and large coffee producers who are a member of private coffee processing cooperatives affiliated with UCAFES, the coffee marketing union;
e. independent small, medium, and large coffee producers who have no affiliation, and
f. small coffee producers who belong to one of the small producer groups organized by PROCAFE.

PROCAFE has different strategies for dealing with established clients, depending on their organizational affiliation. Established medium and larger scale producers who have greater access to transportation and telephones are encouraged to visit or call PROCAFE field offices as their needs arise. PROCAFE plans to reduce the number of field offices within each region but to broaden the range of services provided by the offices which remain, as producers become accustomed to visiting the office instead of waiting for the extension technician to visit the farm.

When dealing with small producers either in agrarian reform cooperatives or as individual farmers, the approach used to reach the final information user is to work with groups of producers. Agrarian reform cooperatives are treated essentially as one decision-making body, and extension efforts are focused primarily on cooperative managers and field supervisory personnel. In the case of private cooperatives and other small producers, extension efforts are directed mainly toward small groups organized by PROCAFE as a means of achieving greater efficiency for technology transfer

The intent of the Grant Agreement was to provide PROCAFE with a greater ability to focus on smaller producers with five or fewer hectares. The targets established in the Agreement for the five year project period was to reach 15,000 small producers and 46 agrarian reform cooperatives. The agrarian reform cooperatives could occur in either of the arrangements a or b above, while small producers could come from either c, d, e, or f from the above list.

PROCAFE has a standard procedure which it employs to form and conduct small producer group activities, and it measures progress in terms of achieving procedural goals such as agent visits, and the establishment of plant nurseries. The performance indicators that PROCAFE uses are measures of intermediate level targets, and gauge process rather than outcomes. For instance, focussing on small group formation is useful as an administrative tool, but not helpful for measuring impact, which is important for determining when assistance could be reduced. Measurements of improvements in productivity, income, and quality of the product would be better in this regard.

PROCAFE's mission to assist the small producer groups would benefit from setting a limited number of outcome targets for the groups, such as improving profitability by a given amount, or increasing productivity to a desired level, and then measuring impact in terms of progress toward achieving these targets.

PROCAFE's objectives for technology transfer are shown in Annex I, Table 8.

One of the issues raised by PROCAFE's extension agents when discussing performance measures is the importance of distinguishing between "new" and "established" clients. PROCAFE has been successful in identifying clients who need and appreciate its services, but once the agent-client relationship has been established there is need for ongoing services that seems to have been underestimated when the targets were first established. PROCAFE has been meeting this need, but ironically, assistance provided to established clients do not help the institution meet its numerical targets.

Conclusion: The performance indicators that PROCAFE uses to measure the progress of extension services are measures of intermediate level targets, and gauge process rather than outcomes.

Recommendation: PROCAFE should set outcome targets for the different producer groups, such as improving profitability by a given amount, or increasing productivity to a desired level. Impact should be measured in terms of progress made toward achieving these targets.

2. Client Visits

The evaluation team reviewed PROCAFE's records of client visits in an attempt to determine the relative level of service to each client category. The following table shows the number of visits to clients between June 17 - September 18, 1995. As shown, during this period the largest category for PROCAFE technical assistance visits was the Small Producer category, with 44% of all visits directed to this group. In contrast, the UCRAPROBEX cooperatives received the fewest visits, with only 4% of the total. However when looking at the relationship between visits to new versus existing clients, the Small Producer category received the smallest proportion of visits to existing clients, with slightly less than half of all technical assistance visits made to existing clients. The UCRAPROBEX cooperatives had the highest rate of technical assistance visits to existing cooperatives at 95%.

The low rate of attention to existing Small Producer clients may be explained by the rapid expansion presently being undertaken in the Small Producer category. This is also an indication that those groups being created at present will represent a significant demand on PROCAFE's technology transfer resources in the future.

Looking at the data in the table below in terms of area served, each manzana of land in the UCRAPROBEX cooperatives received approximately .07 visits during the third trimester while medium and large producers received .21 visits per manzana, UCAFES cooperatives received .37 visits, and the average small farmer received 1.21 visits for each manzana of land in cultivation.

Relationship Between Extension Visits and Area Attended

	No. of Clients Visited June 17-Sept 18, 1995			
Category	New	Existing	Total	Area Attended (Mzs.)
UCRAPROBEX	8	141	149	2,082
UCAFES	368	588	956	2,605
Small Producers	938	856	1,794	1,487
Medium & Large	245	945	1,190	5,551
Total	1,559	2,530	4,089	11,725

A constraint limiting PROCAFE's activities in technology transfer is that at present, a total of 52 extension agents are available to provide technical assistance, while the 1995 operating plan contemplated a total of 77 extensionists. For the entire 1995 year, the expected shortfall will be 25 agents. There are currently 30 extension agents directly involved in working with 118 groups composed of 1,374 small producers (see Tables 9 and 10 in Annex I). The number of groups attended has expanded from 34 in 1994 to a total of 118 at the time of the evaluation.

A factor limiting the number of extension agents is the number of vehicles available for extension work. The Board of Directors has not authorized hiring the additional agents budgeted for 1995 since, if hired, they would have no means of transport. Delivery of the final complement of 23

vehicles is expected before year-end and, assuming no budget constraints, this should clear the way for hiring the additional extensionists.

A factor limiting PROCAFE's ability to work effectively with its clients is the amount of time spent by extension agents in administrative activities. According to data complied by one region for the month of September 1995, only 50% of the extensionists' time is actually spent in proving technical assistance to growers, or carrying out promotional work, or preparing for and conducting field days, or in training coffee producers. The remaining 50% of his time is spent on personal training, in meetings, and on diverse administrative activities such as report preparation, routine office work and carrying out coffee sector surveys.

Significant gains in the productivity of Technology Transfer Agents can be achieved. At present, only fifty percent of their time is spent in the field with clients, and substantial portions of this time may be spent in transport. There is room for improvement in reducing the administrative burden, and in more efficient scheduling.

A heavy burden on the technicians is the number of reports they are required to complete. A total of 19 reports relate to the activities of transfer agents, two of which are completed on a daily basis, and an additional five which are completed as needed. The remaining twelve reports are manually generated by local office staff, consolidating information from the extension agents' daily logs. The twelve reports are relayed to regional offices where they are entered into computer formats. If there is indeed a genuine need for this level of reporting, adequate software and computing facilities at the local offices would permit the twelve reports to be automated, thereby saving considerable time by the extension technicians as well as the office staff. At present the effectiveness of the field offices is hampered by a lack of computer equipment. Computers have been assigned to the central offices and the three regional offices, but have not yet reached the field offices. Specifications for the remaining computer equipment to be ordered for the Project are only now being written.

PROCAFE should critically review its information reporting requirements. Information reporting relating to technology transfer should be related to improving the performance of delivery in addition to satisfying management needs. Consideration should be given to creating databases of agent activities and client characteristics which could be used to satisfy information requests as they occur, rather than to generate reports which could answer questions, should they come up.

Conclusions:

In its three years of existence, PROCAFE has made considerable progress in identifying its clients, learning about their particular needs and developing an appreciation for the various extension approaches that match their situations. Those who receive technical assistance from PROCAFE regard the assistance highly, but often indicate that they would like to see even more services forthcoming from PROCAFE.

Recommendation: PROCAFE should review methods to increase the effectiveness of its extension agents. First, it should critically review its information reporting requirements. Consideration should be given to creating databases of agent activities and client characteristics which could be used to

satisfy information requests as they occur, rather than to generate reports which could answer questions, should they come up. There is also room for improvement in reducing the administrative burden of the extension agents, and in more efficient scheduling of their time.

3. Small Producer Groups

PROCAFE's strategy for the delivery of technical services to small farmers is to form groups of farmers to carry out mutually beneficial activities such as the production of planting material and the demonstration of innovative production practices. Working with groups has proved to be an effective means of delivering technical assistance and for providing training, and the possibility exists that the groups may evolve to provide other services, such as joint marketing. However, the average size of the groups created so far, and the number of groups served by a single extension agent is considerably fewer than what was originally contemplated. On average, the groups attended by PROCAFE have only 11.6 farmers and each extension agent is able to serve, on average, only 3.9 groups. Therefore, on average, only 45.8 group members are served by a single extension agent. With a total of 30 extension agents available to serve small farmers, the average number of small producers served at any given time is 1,375. The reason why groups tend to be small is that larger groups have proven too unwieldy to be effective and tend to disintegrate. Secondly, the extension agent acts alone and presently has no way of leveraging his technical assistance efforts. Thirdly, in a catch-22 situation, as the demand for PROCAFE's services has increased in the face of a fixed roster of extension agents, the technicians assigned to work with small farmer groups have been forced to serve cooperatives and individual small farmers as well, thereby reducing the time available for groups, and therefore limiting the number of groups served.

PROCAFE does not have a "graduation plan" for its producer clients, which is particularly important for small producer groups. The extension agents serving the small producers believe that "new" clients require continuing technical assistance (although of diminishing intensity) for a minimum of three years. Given the pattern of weekly or biweekly visits to each group it is difficult to see how the current team of agents will be able to create the required number of new producer groups and attend to the needs of existing groups at the same time.

For these reasons, PROCAFE has encountered a number of difficulties in meeting its target of small farmers assisted, even with the scaled-down objective of 11,000 small farmers. Under current conditions, with fewer than budgeted extensionists and fewer than expected farmers served by each extensionist, a rapid turnover of small farmers receiving technical assistance is required to meet the targeted number of small farmers served. Should technical assistance be provided to the approximately 6,000 small farmers still to be served over the eighteen months of the project life to meet PROCAFE's current goal of 11,000 small farmers, on average each farmer would have to be rotated within four months. This is obviously not practical. The necessity of a quick rotation to meet internal targets conflicts with good technical practices required to prepare small farmers as efficient coffee producers.[3]

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[3] PROCAFE observed that although the number of non affiliated small farmers assisted is only 5073, there are approximately 3000 small farmers associated with UCAFES which are assisted.

In working with small producers, PROCAFE has learned three important lessons: 1) They have compelling social needs which go well beyond technical recommendations concerning coffee production; 2) the most appropriate strategy for small producers is diversification, which uses coffee as one important component; and 3) these producers have clear difficulties in obtaining credit and in adopting recommendations which require purchased inputs. Given the magnitude of these issues, an extension solution which does not address them is no solution at all. PROCAFE recognizes the need to develop an extension program for small producers which reflect these concerns and delivers appropriate technologies.

For example, small producers endure a widespread lack of "social" infrastructure in the areas of education, health, transport, and communications. PROCAFE's extension agents are often confronted with the dilemma of being trained and equipped to provide targeted, limited, but critical technical assistance in coffee production to a population whose needs are much greater than coffee cultivation. Demands are often placed on them to solve other pressing problems as well. The agents feel they must become involved in many of these social issues in order to create and maintain cohesive groups required for technology transfer. They fear that without such an effort, their work to improve coffee production will be ignored. In addition to the direct involvement by technology transfer agents to help solve problems, PROCAFE works whenever possible with NGOs to provide assistance to small producer groups and uses its influence to arrange meetings on behalf of the producer group with government officials responsible for their area of concern.

A serious constraint limiting the impact of technology transfer to small farmers is the unavailability of credit. This appears to be a major structural problem, in that lending institutions are unwilling to provide production credit for small producers due to high administrative costs and their increased credit risk. This could be alleviated to some extent by grouping together numerous small producers, but doing so requires that the association obtain legal status similar to that of the UCAFES private sector cooperatives. While PROCAFE has had limited success in obtaining credit and investment assistance from the Inter-America Development Bank (IDB) for UCAFES cooperatives, no similar solution is in sight for small producer groups which lack affiliation with an umbrella organization. Therefore, many of PROCAFE's recommendations requiring input purchases will likely be inaccessible to small farmers.

Conclusions:

Given PROCAFE's limited resources for technology transfer, the amount of resources required to serve the increasing number of small producers in the future will be provided at the expense of all other producers.

The inability of small producers and agrarian reform cooperatives to obtain access to credit is a serious limitation to the adoption of PROCAFE's recommendations.

Recommendations:

PROCAFE should either consider providing recommendations to these producers which are labor intensive and do not require obtaining credit, or it should seek to align itself with other programs which can provide the needed credit.

PROCAFE needs to develop a "graduation plan" for its clients, and particularly for the small producer groups that it is creating.

One option that PROCAFE should weigh is the use of group leaders to amplify the efforts of extension agents. Giving greater training to these individuals would allow agents to either reach more small producers, or allow fewer agents to reach the current number.

PROCAFE must develop recommended technology packages for small producers which recognize their needs, devise extension strategies which contemplate the reality of these clients and delivers appropriate technologies.

D. ENVIRONMENTAL ISSUES

The coffee sector is simultaneously an important contributor to both the conservation and the pollution of the environment. A full forty percent of El Salvador's forest area is attributable to coffee plants and coffee shade trees, with a notable effect on water resources, bio-diversity and the ecosystems of coffee producing zones. In addition, the "coffee forest" accounts for forty percent of El Salvador's production of firewood. Conversely, coffee cultivation and processing are major sources of chemical and organic contaminants which threaten coffee workers, the water quality of major rivers and that same ecosystem that it helps creates.

The 1992 environmental assessment of the Project recommended a number of actions to ensure environmental protection. PROCAFE has incorporated most of these recommendations for coffee production and is now applying others for coffee processing. The following is a list of principal activities which have already been incorporated into its research program:

a. Shade management, including the use of different plant species to maintain bio-diversity
b. Integrated pest control, introducing biological control to replace or complement chemical control
c. The resistance of different plant varieties to damage from insects and disease
d. Pesticide monitoring and awareness programs
e. Water pollution monitoring, especially for processing facilities
f. Solid waste management
g. An integrated approach to fertilizer and soil fertility problems (to be initiated in 1996)

The CADIEX research guidelines are explicit in their concern for maintaining and improving environmental quality. The premise for this pro-environmental position is that the sustainability of profitable coffee production depends on the environmental conditions in which the coffee plant

grows: soil, shade, beneficial and harmful organisms and micro-climate. Additionally, environmental conditions directly affect the quality of finished coffee, especially the quality of water used in post-harvest processing. Environmental factors are increasingly important in determining consumer acceptance as well as sales prices in traditional, gourmet and especially, organic coffee markets.

The environmental aspect of PROCAFE's research program is focused on five principal areas of need:

a. Pesticide use and biological controls
b. Deforestation
c. Bio-diversity
d. Soil erosion and fertility
e. Waste disposal and water quality

These have been incorporated into the day-to-day activities of the Genetics, Plant Protection and Production Systems Programs. In keeping with the need for generating information quickly, in most cases investigation related to the environment is short-term and problem-specific. Research is carried out on the treatment of coffee pulp by examining its conversion to organic material which can be returned to the plantation or used as fuel for drying processed coffee. Integrated pest and disease control options are being tested, and recommendations have been prepared and disseminated which decrease or entirely eliminate the need for chemical controls.

The environmental impact of coffee production and processing must also be viewed over the long term. IRI's Environmental Advisor is now monitoring these effects on a continuing basis. Annex II, Figure 6 lists the environmentally related projects under his supervision and/or with his input, in which monitoring activities play an important role. Unfortunately, it was reported that within the rank and file of PROCAFE's technical staff there is not great enthusiasm to embrace long-term monitoring activities, and that they are viewed more as a source of data for GIS than as inputs for research decision-making.

PROCAFE has thus far missed an opportunity to become involved in a relatively small, albeit growing, production subsector which has a particularly favorable impact on the environment: organic coffee. The Cooperative League of the United States (CLUSA) currently administers two USAID-funded cooperative development projects in El Salvador which encourages the production and export of organic coffee. Since these projects are scheduled to end in 1996, the timely involvement of PROCAFE would ensure the continued availability of organic production technology after the projects end.

Conclusions:

It is important that PROCAFE quickly define its longer-term activities related to the environment. El Salvador faces particularly serious environmental problems due to its high population density, severe dry season and porous volcanic soils and concentration of its coffee processing capacity.

Coffee and environmental quality are priority areas of concern for PROCAFE management and largely dependent on post-harvest processing conditions. Yet, there is no permanent program that is adequately staffed and funded to address problems in this area.

In the area of "organic coffee" there has been little collaboration between PROCAFE and CLUSA, another USAID supported effort.

Recommendations:

An environmental research program for the next five years should be presented by CADIEX for approval by the Board of Directors. Responsibility for determining research and resource priorities for a program of this importance should not be left to a technical committee.

Given that the CLUSA projects which support organic coffee production are scheduled to terminate in the near future, PROCAFE should consider incorporating this technology into its extension program, to ensure that technical support will be available to these specialized growers.

E. ECONOMIC CRITERIA AND ANALYSIS

The historically all-time low prices of the early 1990's brought into sharp focus the economic aspects of coffee production. As a result, both the *Consejo Salvadoreño de Café* (CSC) and CADIEX have placed heavy emphasis on activities that will enable the coffee industry improve economic efficiency. For PROCAFE, this translates into the generation and transfer of technologies for greater productivity, lower costs and/or improved product quality. To that end, the Project provides an economic advisor to assist in the economic characterization of the coffee industry and the application of economic criteria to evaluate research recommendations. However, the lion's share of the advisor's efforts has been spent on economic and production aspects of the entire industry, principally in the areas of determining research priorities, creating baseline data and institutional planning.

Training in economic principles and farm management methods has been provided to extension personnel by the Economic Studies Department. However, other than the training of tecnicians, however, there has been little field work carried out to integrate economics into the technicians' decision making and little acceptance of the Economics Department as a source of complementary services. As in the case of the GIS, the introduction of economic analysis into the process of evaluating technology generated by the research departments has met great resistance. While the senior technical managers in research all profess a need for assessing the economic feasibility of technology; in fact, they have no plan for doing so.

There is a dichotomy within PROCAFE as to the role of economics in a research and extension institution. At the executive level, including the Board of Directors, CADIEX and the General Manager, it is given the importance which would be expected from members of the private sector. However, at the technical level there is none of this concern, likely reflecting an attitude and/or tradition inherited from ISIC. It is not that there is not some attention paid to partial budgeting and production costs, but rather, as with the GIS, the economics methodology is not accepted; a

methodology which would give additional dimension and validity to PROCAFE's recommendations.

It is evident that the orientation of PROCAFE's technical departments continues to be toward technology and not toward the farm enterprise that is the recipient of the technology, and which has the express purpose of earning a profit. This should be changed; particularly since many of PROCAFE's recommendations have far reaching and costly implications for the producer. There is no indication of a disciplined basis for selecting among alternative technologies and production strategies. For example, two of the principal areas in which PROCAFE offers advisory services are the renovation and diversification of coffee farms. Either of these programs, if embarked upon by the producer, are expensive and long-term; yet, the practices recommended are not placed in the context of a farm plan which projects costs, production, sales and income flows.

Conclusion: There needs to be a greater integration of economic criteria and analysis into PROCAFE's methodology, both for research and technology transfer.

Recommendation: Economic principles should be brought into the decision-making process. Research and extension technicians should be given sufficient training and orientation to enable them to work with and take advantage of PROCAFE's economic specialists.

F. IMPACT

1. Achievement of Project Objectives

The desired outputs from the Coffee Technology Transfer Project are the following:

a) A total of 15,000 small coffee producers and 46 cooperatives will have received technology transfer services by the time the Project ends.

b) New technologies and improved cultural practices will be applied to 120,000 manzanas (mz) of coffee lands:

- 20,000 manzanas fully replanted
- 31,250 manzanas partially replanted
- 68,750 manzanas cultivated under improved agronomic practices offered by PROCAFE

c) Mature plantings will yield 25 cwt/mz for fully replanted coffee; 20 cwt/mz for partially replanted coffee, and 15 cwt/mz for coffee grown under improved agronomic practices.

d) PROCAFE will have sustainable administrative, research and technology transfer units.

At the end of the Project it is expected that PROCAFE will be providing assistance to 15,000 small farmers and 46 agrarian reform cooperatives; the producers and cooperatives will have achieved an

average yield of 20 cwt/mz, and PROCAFE will have established a permanent coffee research and extension capacity.

The progress reported by PROCAFE toward the achievement of Project goals is shown in the following table, which is derived from the foundation's September 30, 1995 quarterly report. PROCAFE's internal performance objectives and achievements to date are summarized in Annex I, Table 8. The figures shown in Table 8 were taken from PROCAFE's 1993 - 1997 strategic plan. One of the primary outputs of the Project is to provide technical assistance to 15,000 small farmers, which is 36% greater than PROCAFE's target of 11,000 small farmers established in its 1993 - 1997 strategic plan. Apparently the Project target was based on erroneous information since the entire population of Salvadoran small coffee farmers is estimated to be around 14,000 producers.

Progress Reported by PROCAFE
Toward the Achievement of Project Objectives
(Through September 30, 1995)

PARAMETER	ACHIEVEMENT TO DATE	TOTAL PROJECT OBJECTIVE	PERCENT OF OBJECTIVE
Assistance to Small Farmers (No.)	5,073	15,000	33%
Average Yield on Small Farms (cwt/mz)[1, 2]	13.02	20.0	37%
Assistance to Cooperatives (No.)	64	46	139%
New Technology and Better Cultural Practices (mz)	43,838	120,000	37%
Fully Replanted Area (mz)	980	20,000	5%
Partially Replanted Area (mz)	4,024	31,250	13%
Cultivated under improved agronomic practices (mz)	38,834	68,750	56%
Yield of fully replanted coffee (cwt/mz)[2]	n/a	25	n/a
Yield of partially replanted coffee (cwt/mz)[2]	n/a	20	n/a
Yield of coffee under improved practices. (cwt/mz)[2]	n/a	20	n/a

Notes to the table:
[1]Assumes that the base yield was 9.0 cwt/mz in 1991, as stated in the Project Paper. The figure of 13.02 cwt/mz is the national average for 1994/1995.
[2]PROCAFE is not presently collecting this information on a consistent basis. The numbers presented in the quarterly reports are estimates which cannot be substantiated.

Source: Project Paper and PROCAFE's September 30, 1995 Quarterly Report.

At PROCAFE's current rate of progress it is unlikely that even 11,000 small farmers will be assisted by the end of the Project, nor is it reasonable to expect that 20,000 manzanas will be fully replanted,

nor will 31,250 manzanas be partially replanted. In discussions with key managers at PROCAFE's Technology Transfer Department they complained that the 1992 - 1997 strategic plan was developed on behalf of PROCAFE by a team of USAID consultants, and that the current management team has to live with unrealistic targets developed by people outside the organization. The targets they believe to be unrealistic relate to the required number of farm visits and the areas to be rehabilitated. Note that PROCAFE's targets for farm rehabilitation are similar to those established in the project paper (see Annex I, Table 8).

It is not clear how much progress PROCAFE has made in bringing about improved crop yields on rehabilitated (replanted) areas and on those areas where agricultural practices have been improved. The five-year plan did not establish targets for crop yield improvements, and PROCAFE has yet not developed methods for compiling this information. Although figures tracking productivity improvements are reported to USAID quarterly, the reported amounts are estimated quantities that cannot be substantiated. PROCAFE plans to install an information monitoring system in 1996 to provide reliable information on productivity gains by type of producer and size of farm.[4]

PROCAFE should also modify its method of "keeping score" in its delivery of technical services to small farmers. Presently, all PROCAFE's clients are placed in four categories: as small farmers, large/medium farmers, UCRAPROBEX (collective farms) cooperatives, and UCAFES (private farms) cooperatives. Many of UCAFES' members are small landholders who could be classified and counted as small farmers for purposes of determining the number of small farmers served. By reclassifying UCAFES'producers by their farm size, a more accurate reading could be obtained of the number of small farmers assisted.

The limited progress toward achieving the targets of fully planted, and partially planted areas is due primarily to the reluctance (or inability) of coffee producers to finance plantation rehabilitation. These factors are largely outside PROCAFE's control. The decision by a coffee grower to rehabilitate his farm depends on his ability to self-finance the investment, or to obtain intermediate term credit from a financial institution. The grower's financial capability as well as the overall investment climate in the Salvadoran coffee sector depend largely on international coffee prices and domestic economic policy. The underlying assumption of the Project design was that intermediate term credit for coffee rehabilitation would be available. This is not the case for most small farmers who have limited borrowing capacity, nor for Agrarian Reform Cooperatives which do not have the possibility of providing loan guarantees by granting a lien on their property.

While it would be possible for PROCAFE to provide assistance to coffee producers in the preparation of loan packages, this would be a considerable administrative burden and would likely have limited impact. The producer's inability to prepare loan applications is not the underlying constraint to farm rehabilitation.

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[4] PROCAFE's observation was that data is being recorded from assisted farmers which will permit a determination of impact over time. Once the computer data record retrieval system is in place, this type of information will be readily available.

Conclusions:

PROCAFE's current goal of assisting 11,000 small farmers between 1993 and 1997 is less than the Project goal of assisting 15,000 small producers over the LOP. The Project goal is apparently based on erroneous information.

The targeted areas of coffee rehabilitation will not likely be met since the decision to rehabilitate is largely dependent on economic factors outside PROCAFE's control.

PROCAFE has not yet compiled information on yield improvements by assisted farms.

Recommendations:

PROCAFE should propose to USAID a modification of Project outputs to a level considered more attainable. These revised goals should be included in PROCAFE's strategic plan for the period 1996 - 2000.

PROCAFE should also modify its method of keeping track of the number of small farmers assisted by including the small, private producers affiliated with UCAFES' cooperatives in the total.

2. Impact of Technology Transfer on Coffee Production

Even though there would appear to be a massive amount of information being gathered at present, data which would allow for an assessment of impact are not readily available.

The evaluation team requested that production data be gathered from representative samples of four producer categories. These data are presented in the table below. The data do reflect steady increases in productivity in all categories other than the Agrarian Reform Cooperatives category, in which declines seem to be occurring.

Average Yields of a Sample of PROCAFE Clients in the Three Regions

	1992-93	1993-94	1994-95	1995-96
Private Cooperatives	11.0	9.1	9.0	11.9
Agrarian Reform Cooperatives	18.7	12.2	15.3	14.0
Small Producer Groups[1]			10.1	11.4
Unaffiliated producers[2]	13.8	12.5	16.8	16.3

[1]There was one group functioning in Region II during 1992 and 1993, which was excluded for this analysis.
[2]This category includes small, medium, and large producers unaffiliated with Producer groups or cooperatives.

3. Impact of the Project of the Coffee Sector

Thus far the Coffee Technology Transfer Project has touched about one-third of the coffee producing area in El Salvador, with varying degrees of intensity. Although the Project began a little more than three years ago, it has been in full operation for only two years. Little technology transfer occurred during the first year of operations due to startup problems and limited availability of vehicles. Furthermore, the TA team was not in place until the last half of 1993, a little more than a year after the Project actually began.

Given the limited number of coffee farms under rehabilitation, most productivity increases will result from improved cultural practices. These improvements are gradual, occurring over time and without immediate effect.

While there has been some improvement in coffee productivity since 1990/1991, the results have been erratic from year to year (Annex I, Table 1). It is not possible to determine how much of the increase can be attributed to the Coffee Technology Transfer Project. Most likely, the greatest impact on coffee production and productivity has been the favorable prices registered for the past three years. It is simply too early to tell what the impact of the Project has been on the coffee sector as a whole.

Conclusion: It is not yet possible to quantify the impact of the Project on production and productivity in the coffee sector.

4. Gender Impact

The project paper estimates that approximately thirty percent of El Salvador's land in coffee production is owned by women, and that about half of those employed in coffee cultivation are also women, working on nearly all tasks besides heavy pruning. PROCAFE reports indicate the level of involvement of women both as beneficiaries and as project personnel, although gender targets were not formally established in the contractual agreement.

Twenty-two percent of small, medium, and large PROCAFE clients are reported to be women. As of September, 1995, fifteen percent of the cumulative total number of new coffee producers contacted were women, and twenty-five percent of new contacts initiated during the third quarter were women. Thirty five percent of the new contacts from UCAFES cooperatives were women, and none of the new contacts from UCRAPROBEX cooperatives were women. Interestingly, the proportion of follow-up contacts with women declined, accounting for only thirteen percent of the follow-up visits. Thirteen percent of those who have received training since the beginning of the project were also women, with little change in the most recent reporting period.

Institutionally, women are well represented at most levels of the foundation, particularly in Administration and Research. Two of the fifty-two extension agents are women, although there have been others who terminated their employment. PROCAFE administrators and advisors pointed out that the difficult working conditions and safety concerns are an issue for women working in rural areas. However the women agents interviewed indicated that these problems exist throughout Salvadoran society, and that other policy factors play an important role as well. Given the difficult

conditions of rural roads during the rainy season, motorcycles assigned to field personnel as work vehicles are perceived to be unsafe. The work location itself is also important in the sense that women appear reluctant to relocate to some regions of the country, and wish to have a greater choice over their work locations.

PROCAFE is making an effort to reach women coffee producers. However if the figure reported in the project paper is correct and thirty percent of Salvadoran coffee producers are, in fact, women, then PROCAFE needs to make more progress in this area. One way it can do so is to accord women a larger place among the ranks of extension agents. One of the female extension agents suggested that PROCAFE should conduct a "gender issues" course particularly for middle and upper level managers as a means of increasing the sensitivity toward women coffee producers and the awareness of the need for a greater number of women agents.

Conclusion: For cultural reasons, male extensionists are less effective in working with women producers than female extensionists. Additionally, female extension agents appear to hold a higher level of confidence with women farmers than do male agents. Therefore, in order to reach a greater number of women farmers, more female extensionists should be used.

Recommendation: For greater impact on women coffee producers, more female extension agents should be employed. PROCAFE should change hiring policies to actively encourage the employment of women. Other policy changes to increase the productivity of women agents would include providing them with automobiles as work vehicles (not motorcycles) and providing them greater flexibility in the selection of work locations. A gender issues course for PROCAFE's upper and middle managers as related to women extensionists would also be useful.

5. Economic Impact of Research

The research focus on providing solutions to principal problems facing the coffee sector offers a potential for a high economic returns. The Plant Protection Department identified six major production problems as being responsible for the greatest losses in productivity and quality nationwide. Quantification of these losses indicate that national coffee production is reduced by approximately 320,000 *quintales*, which is approximately 10% of El Salvador's total output, and valued at over $40 million at today's prices. It is estimated that the cost of significantly reducing these losses would be around $11 million, indicating a 4:1 benefit/cost ratio for reducing the priority problems identified for the research program. Therefore, at current prices, the potential economic impact of a national coffee research program considering only these six priority problems is approximately $29 million.

Annex II, Figure 5 details the loss of production accounted for by each of the problems considered. Encouraging results have already been demonstrated by integrated control of *broca*, which alone is responsible for decreasing the national harvest by 70,000 *quintales*. Similar low-cost solutions are under investigation for the other major production problems, including the use of resistant rootstock to combat the effect of nematodes and soil borne pathogens.

F. SUSTAINABILITY OF PROJECT BENEFITS

1. Sustainability of PROCAFE as an Institution

PROCAFE's financial well-being over the long term is dependent on the "dólar-café" retention of US $1.00/cwt authorized by Decree 265, published in the "Diario Oficial" on July 14, 1992. USAID's contribution was a critical factor in PROCAFE's successful beginning and grant funds continue to be its most important source of revenue. USAID currently supports PROCAFE in the following areas: a) Salary and expenses of the international TA team, b) vehicles and equipment used in laboratories and offices, including computers, GIS and training equipment, c) training costs for PROCAFE's staff, coffee producers and processors, and others in the coffee sector, d) infrastructure costs such as building rehabilitation and e) a limited amount of PROCAFE's recurring costs, such as building rental. PROCAFE pays almost all of its core operating costs with "dólar-café" funds, supplemented by interest income and revenues from the sale of laboratory and mapping services.

The following table compares PROCAFE's core operating costs since its beginning with income derived from "dólar-café" and internal sources. This gives an indication of the organization's ability to cover at least its current level of operating costs after USAID support ends.

Comparison of PROCAFE's Core Operating Costs with Income Derived from Non-USAID Sources (¢ 000)

ITEM	1992 (p)	1993	1994	1995 (p)
PROCAFE Income:				
"Dólar-café" Donation	0	6,956	22,486	18,518
Other Income	172	1,447	4,392	3,350
Total Income	172	8,403	26,878	21,868
Core operating costs	6,968	16,090	25,684	18,758
Difference	(6,796)	(7,687)	1,194	3,110

Notes to table:
(p) 1992 figures are for a partial year, covering approximately six months from the time of PROCAFE's creation. 1995 figures are through September 30, 1995.
Core operating costs include training expenses and operating costs presently reimbursed by USAID.

Provided that "dólar-café" funds continue to flow at the present level, both PROCAFE's Board President and its General Manager believe that the organization will be able to provide research and extension services to coffee producers and processors at about the same level of effectiveness as is now being delivered, after USAID funding ends. The above table confirms their belief.

PROCAFE is currently preparing a self-sufficiency plan which will be completed before the end of 1995. Options being considered to increase operating revenue include charging higher fees for services, particularly for laboratory analyses and GIS mapping services. Planned reductions in

operating costs will take place by the consolidation of field offices and by the possible reduction of non-essential personnel. Other options are being studied to reduce cash requirements, such as guaranteeing employee loans for vehicle purchases. Personal vehicles purchased under the loan guarantee program would be used for official business on a cost-reimbursement basis. This would eliminate the financial burden of the future replacement of the existing fleet of work vehicles. In addition, the CADIEX committee recommends that PROCAFE not follow through with its plans to purchase experimental farms; instead, the properties could be operated under a long term lease. This would also reduce cash requirements over the near term.

A key element in all possible scenarios of income and expense projections is that PROCAFE's financial well being and its ability to provide services to the coffee sector will continue to be entirely dependent on the "dólar-café" retention. Herein lies the greatest potential threat to PROCAFE's sustainability.

Decree 265 authorized the retention of US $1.00/cwt as a "special contribution" which was required before USAID would proceed with the Coffee Technology Transfer Project. The retention is authorized on a year-to-year basis, and each year's authorization requires congressional approval. Congress is at liberty to authorize the annual retention, or not, or to change the amount retained. In the event that coffee prices should once again decline to the 1991 - 1993 level, the willingness of the sector and its congressional representatives to tolerate a deduction of $1.00/cwt from export revenues may evaporate.

Another problem faced by PROCAFE is that the Salvadoran Coffee Council (CSC), the coffee regulatory agency, is the fund administrator. CSC retains $1.00 for each hundredweight of coffee exported and transfers the cash to PROCAFE by means of a service contract. (CSC also retains $.35/cwt which is used to finance its own operations). Under the contract, PROCAFE is obligated to provide technical services to the coffee industry as described in its annual operating plan, and to keep CSC informed of progress made by means of quarterly performance reports. The result is that PROCAFE is totally dependent on CSC (a government agency) for operating funds. A CSC official is responsible for providing a check to PROCAFE every 15 days in the amount currently retained. This dependency provides opportunities for CSC to exercise control over PROCAFE's operations. For example, at the end of 1994, CSC requested PROCAFE to return all the funds which remained from annual operations, even though the funds were being held in reserve for capital expenditures. Another report to the evaluation team indicated that during a conflict between PROCAFE and CSC, the CSC official "forgot" to send PROCAFE's bi-weekly check as a means of bringing the foundation to heel.

Obviously, this tenuous financial situation is unhealthy and could potentially lead to the abrupt closure of PROCAFE. The foundation's management team believes that as long as they continue to do an effective job in providing services to the industry, the "dólar-café" funds will continue to flow. They also believe that the current political administration is in favor of the retention. Unfortunately, however, in the often cruel world of political and economic reality, good performance is not always fairly rewarded.

The dollar check-off is an effective mechanism for funding PROCAFE but the organization urgently needs to remove the uncertainty clouding its future. The chances of accomplishing this may be better sooner than later, in light of the favorable climate with the current administration. PROCAFE should define its funding requirements in light of its long term objectives and take its case to the coffee sector. Once the industry has developed a common position, the sector should then approach the government, through CSC, with a petition for the necessary legislation.

PROCAFE should continue to seek external sources of funding from international donors. Thus far the foundation's contact with the international community has been relatively limited. For example, PROCAFE is presently collaborating with the Inter-American Development Bank (IDB) on a pilot project benefitting six cooperatives affiliated with UCAFES. Under the program coordinated by UCAFES, IDB provides office equipment to the cooperatives and crop credit to the members, while PROCAFE provides technical assistance to participating coffee growers. The foundation is also collaborating with the European Community (EC) to develop a pilot project for small scale, environmentally friendly coffee processing in the Chaletanango Department. These organizations are assisting PROCHELATE, a non-profit, non-government organization (NGO) to procure and operate a small coffee processing plant. Finally, PROCAFE is collaborating with PRODAP, a NGO financed by the International Fund for Agricultural Development (IFAD), to help develop micro-enterprises by small farm families which are financed by PRODAP. PROCAFE's interest is to encourage the cultivation of diversified crops on coffee farms.

In conversations with PROCAFE's Board President, he indicated that in the near future the organization plans to approach other international organizations such as the European Economic Community (EEC), the German Development Agency (GTZ) and the Canadian International Development Agency (CIDA) to determine the possibility of obtaining funds for environmentally beneficial projects such as reforestation.

Conclusions:

The lack of assurance over long term funding of the "dolar-café" retention is a dark cloud over PROCAFE's future.

PROCAFE's mid-term financial position is relatively strong. The organization should be able to provide approximately the same level of service as it now does, after the Coffee Technology Transfer Project ends. As long as the "dolar-café" donation continues at its current level, PROCAFE will be able to function normally. However, the Foundation is totally dependent on this retention as its primary source of income.

Recommendations:

PROCAFE should make a concerted effort with the leaders of the coffee sector to resolve the present uncertainty over its long term funding. Once the industry has developed a common position, the sector should approach GOES, through CSC, with a concrete proposal to secure long term financing of the organization's recurring costs.

PROCAFE should follow through on its plans to contact international donors for possible funding, either from outright donations or from service fees for assisting projects related to the Foundation's overall objectives, such as reforestation or environmental improvements.

PART THREE

CONCLUSIONS, RECOMMENDATIONS, AND LESSONS LEARNED

A. CONCLUSIONS

1. Management Issues

PROCAFE's financial position projected over the medium term is relatively strong. As long as the "dolar-café" donation continues at its current level, PROCAFE will be able to function normally and should provide approximately the same level of service as it now does, after the Coffee Technology Transfer Project ends. However, the Foundation is totally dependent on this retention as its primary source of income. Additionally, the lack of assurance over long term funding of the "dolar-café" retention is a dark cloud over PROCAFE's future.

PROCAFE has made good progress toward becoming a capable coffee research and extension organization. Its planning and budget management are highly effective, but the Board of Directors is too deeply involved in the day-to-day activities of the organization.

Although the TA provided by IRI is more costly than levels seen on many USAID projects, on balance it has been effective. The evaluation team believes that USAID is receiving good value for the money spent on technical assistance. In order to consolidate the advances made to date in some specialized areas, additional international TA will be needed beyond the expiration date of the IRI contract.

PROCAFE's current goal of assisting 11,000 small farmers between 1993 and 1997 is different from the Project goal of assisting 15,000 small producers over the LOP. The Project goal is apparently based on erroneous information. At the current rate of progress it is doubtful that even 11,000 small farmers will be adequately served by the end of the Project. Furthermore, the targeted areas of coffee rehabilitation will not likely be met since the decision to rehabilitate is largely dependent on economic factors outside PROCAFE's control. Also, PROCAFE has yet not developed methods for compiling information for yield improvements on assisted farms, which is an important measure of Project performance.

It is not yet possible to quantify the impact of the Project on production and productivity of the coffee sector with any degree of certainty. It is simply too early in the Project to determine what the impact has been so far.

The slow delivery of vehicles and computers has had a negative impact on PROCAFE's performance, particularly in extension activity.

2. Research Issues

Privatization of coffee research has had the following positive effects:

a. PROCAFE management has given priority to solving important problems in the coffee sector. Its mandate is to rapidly and efficiently produce technology which will result in increased productivity and farm income.

b. PROCAFE is developing an effective and efficient administration to support its primary functions: technology generation and transfer.

c. PROCAFE has incorporated the principal players from the coffee sector into its Board of Directors and Advisory Council, thus providing a forum for private sector participation.

d. PROCAFE has attempted to integrate the research and transfer functions to achieve correct solutions to significant problems. That integration process is still in progress.

The mandate from the PROCAFE Board of Directors is for applied research. The metamorphosis from an ISIC to a PROCAFE research methodology is as yet incomplete. PROCAFE's research is still oriented toward problems, not solutions; toward individual components in the production process, not the farm enterprise. PROCAFE's extension agents need a greater range of information from its researchers to better define producer options. One-size-fits-all recommendations are not valid given the diversity of the coffee sector, and the researcher must participate in defining best alternatives for farm conditions. While the problems which face all coffee producers are generally the same, the solutions are not. PROCAFE's research program does not differentiate between the technologies that are appropriate for the low versus high resource producers. If, *a priori*, the research and extension institution is aware of conditions which will impede the adoption of the technical recommendations it offers as solutions, then it is not really offering solutions.

Demand for the GIS has been from the individuals in the coffee sector, primarily for mapping services; PROCAFE technicians have not grasped the contribution that the GIS could make to their research and transfer activities.

The complexity and importance of the environmental aspects of the coffee industry, are not reflected in PROCAFE's research program. Research activities that reflect long-range concerns about the environmental originate from top PROCAFE management and the Advisory staff, not from the technical offices. It is important that PROCAFE quickly define its longer-term activities related to the environment. El Salvador faces particularly serious environmental problems due to its high population density, severe dry season and porous volcanic soils and concentration of its coffee processing capacity.

Coffee and environmental quality are priority areas of concern for PROCAFE management and largely dependent on post-harvest processing conditions. Yet, there is no permanent program that is adequately staffed and funded to address problems in this area.

There needs to be a greater integration of economic criteria and analysis into PROCAFE's methodology, both for research and technology transfer.

PROCAFE does not monitor and measure the impact on the coffee sector of recommendations that have been adopted. Impact is estimated on a subjective basis.

In the area of "organic coffee" there is little collaboration between PROCAFE and CLUSA, another USAID supported effort.

3. Technology Transfer Issues

Conclusions:

Those currently receiving Technical Assistance from PROCAFE regard the assistance highly, but often indicate that they would like to see even more services forthcoming.

The performance measures that PROCAFE uses for technology transfer are based on intermediate level targets and gauge process rather than outcomes. For instance, focussing on small group formation is useful as an administrative tool, but not helpful for measuring impact, which is important for determining when assistance could be reduced.

The inability of small producers and agrarian reform cooperatives to obtain access to credit is a serious limitation to the adoption of PROCAFE's recommendations. PROCAFE must develop recommended technology packages for these producers which recognize their needs, devise extension strategies which contemplate the reality of these clients and delivers appropriate technologies.

For cultural reasons, male extensionists are less effective in working with women producers than female extensionists. Additionally, female extension agents appear to hold a higher level of confidence with women farmers than do male agents. Therefore, in order to reach a greater number of women farmers, more female extensionists should be used.

B. RECOMMENDATIONS

1. Management Issues

PROCAFE should make a concerted effort with the leaders of the coffee sector to resolve the present uncertainty over its long term funding. Once the industry has developed a common position, the sector should approach GOES, through CSC, with a concrete proposal to secure long term financing of the organization's recurring costs.

PROCAFE should follow through on its plans to contact international donors for possible funding, either from outright donations or from service fees for assisting projects related to the Foundation's overall objectives, such as reforestation or environmental improvements.

PROCAFE should propose to USAID a modification of Project outputs to a level considered more attainable. These revised goals should be included in PROCAFE's strategic plan for the period 1996 - 2000. Also, PROCAFE should set outcome targets for the different producer groups, such as improving profitability by a given amount, or increasing productivity to a desired level. Impact

should be measured in terms of progress made toward achieving these targets. Furthermore, PROCAFE should modify its method of keeping track of the number of small farmers assisted by including the small, private producers affiliated with UCAFES' cooperatives in the overall score.

PROCAFE should authorize the TA team to provide an organizational expert to work on behalf of the Board of Directors to review reporting and control procedures necessary to keep the board informed of PROCAFE's major activities but requiring fewer meetings and less intervention in daily activities.

USAID and PROCAFE should explore alternatives to continue TA in specific areas beyond the expiration date of the IRI contract. Areas where continued TA is needed include GIS, environmental services, and occasional problem-solving or technology transfer for coffee processing.

2. Research Issues

Research should be more focused on actual farm conditions, including the capacity of producers to adopt and manage the technology recommended by PROCAFE and the relevance of the technology to those conditions. Special concern should be given to the low-resource producer and his ability to adopt coffee and diversification technology.

PROCAFE should make use of the modern information management techniques that are available to it to monitor and analyze the impact that its program and recommendations are having on the coffee sector, and utilize this information to adjust and fine tune its program.

Economic principles should be brought into the decision-making process. Research and extension technicians should be given sufficient training and orientation to enable them to work with and take advantage of PROCAFE's economic specialists. Research methodology should be modified to incorporate economic criteria into the formulation of recommendations and economic analysis in measuring the consequences on the farm enterprise of adopting those recommendations.

An environmental research program for the next five years should be presented by CADIEX for approval by the Board of Directors. Responsibility for determining research and resource priorities for a program of this importance should not be left to a technical committee. The research agenda should be reprogrammed to reflect the magnitude of the long-range environmental problems facing El Salvador.

Given that the CLUSA projects which support organic coffee production are scheduled to terminate in the near future, PROCAFE should consider incorporating this technology into its extension program, to ensure that technical support will be available to these specialized growers.

PROCAFE should educate its research technicians on how to use the GIS to help design, implement and evaluate research projects.

PROCAFE should establish a "dual career path" personnel policy for research technicians.

3. Technology Transfer Issues

The productivity of Technology Transfer Agents should be improved. There is room for improvement in reducing the administrative burden, and in more efficient scheduling. One option that PROCAFE should weigh is the use of group leaders to amplify the efforts of extension agents. Training and incorporating these individuals into the technology transfer program would allow existing agents to reach more small producers, or allow fewer agents to reach the current number.

PROCAFE needs to examine its information reporting system. Information reporting of technology transfer should be related to improving the performance of the system, not to satisfy management needs. Consideration could be given to creating databases of agent activities and client characteristics which could be used to satisfy information requests as they occur, rather than to generate reports which could answer questions, should they come up.

PROCAFE needs to develop a "graduation plan" for its clients, and particularly for the small producer groups that it is creating. As presently conceived, it is not clear that the groups will ever be able to survive without steady support from PROCAFE technicians.

PROCAFE employs a methodology to form and conduct small producer group activities, and it measures progress in terms of achieving procedural goals such as agent visits and the establishment of nurseries. However PROCAFE's mission to assist small producers would benefit from setting a limited number of outcome targets for the group members, such as improving profitability by a given amount, or increasing productivity to a desired level, and then measuring impact in terms of progress toward achieving these targets.

The inability of small producers and agrarian reform cooperatives to obtain access to credit is a serious limitation to the adoption of PROCAFE's recommendations. PROCAFE should either consider providing recommendations to these producers which are more responsive to farm conditions (e.g. labor intensive) and do not require obtaining credit, or it should seek to align itself with other programs which can provide the needed credit.

For greater impact on rural females, more female extensionists are needed. PROCAFE should change policies to actively encourage employment of females. A gender issues course for PROCAFE's upper and middle managers as relates to women extensionists would also be useful.

C. LESSONS LEARNED

The following lessons learned from the Coffee Technology Transfer Project relate to the techniques, approaches and Project design considerations which have proven to be most effective, as well as those aspects which have not performed well, due to design deficiencies or implementation problems.

With considerable assistance from the Project, PROCAFE is rapidly evolving into a model of privatized research and extension. However, given the over-riding need for institutional development in the transition from public institution to a private organization, more emphasis should have been given in the project design to the management and organizational development of PROCAFE. The

foundation would have been more effective in carrying out its mandate had it been managed more fully as an integrated business with interlocking components. For example, gaps still exist between the vision and planning of PROCAFE's program by its board of directors, and its implementation by field agents. Similarly, the TA team has focussed on research and development issues within the confines of individual specialties and has tended to overlook organizational development. The result has been a fragmentation of efforts as different components pursue their own interests. For instance, the economics component has not been well integrated with the research division and GIS efforts go mostly unheeded by others within the foundation. With greater integration and coordination of efforts leading to greater cohesion, PROCAFE could become more effective.

The small producer group methodology has proved successful. This has been an effective method for attracting women participants in the extension program, at about the same rate as women are present in the coffee producing population. Currently, women make up about one quarter of the small producer groups, and this methodology appears well suited to encouraging their more active participation in the sector. The largest proportion of women come from the UCAFES sector.

One implementation practice which has proved counterproductive is that of the near exclusive focus on new small coffee producers as clients. The extension agents focus on recruiting new clients with insufficient consideration for continuing services to established clients. To achieve the unrealistic targets established in the agreement, PROCAFE has adopted a strategy of a rapid turnover of its client base, which is clearly not in the best interest of the coffee sector. Extension program targets should take into consideration the establishment of a professional - client relationship which, to be most effective, must continue over a long period of time.

While process indicators may be useful for the day-to-day project management, impact indicators are necessary to determine project effectiveness and for informed decision-making as to when technical services can be discontinued. Farm income and productivity indicators would be especially useful to measure PROCAFE's performance.

The potential exists to develop a powerful set of information tools from the databases used in conjunction with GIS activities. Nevertheless, at present, GIS applications are not systematically incorporated into either research or extension activities. These databases lend themselves particularly well to mapping, but could also serve for special information requirements such as tracking the incidence of pests and diseases or for monitoring the residual population of released parasitoids. The danger of becoming technologically enamored with the mystique of GIS clearly exists, and PROCAFE should never lose sight that this technique is merely a useful tool for displaying information contained in databases.

In working with small producers, PROCAFE has learned three important lessons: 1) They have compelling social needs which go well beyond technical recommendations concerning coffee production; 2) the most appropriate strategy for small producers is diversification, which uses coffee as one important component; and 3) these producers have clear difficulties in obtaining credit and in adopting recommendations which require purchased inputs. Given the magnitude of these issues, an extension solution which does not address them is no solution at all. PROCAFE recognizes the need

to develop an extension program for small producers which reflect these concerns and delivers appropriate technologies.

ANNEX I

TABLES

MID-TERM EVALUATION

OF

THE COFFEE TECHNOLOGY TRANSFER PROJECT

Table 1

EL SALVADOR - COFFEE AREA, PRODUCTION AND YIELD, 1969 -1995

Production Season	Area ('000/MZ.)	Production ('000/CWT)	Yield (CWT\Mz.)
1969/70	201.74	3,208.40	15.90
1970/71	200.31	2,653.00	13.24
1971/72	201.74	3,566.09	17.68
1972/73	204.60	2,920.43	14.27
1973/74	207.47	3,092.61	14.91
1974/75	210.33	5,903.48	28.07
1975/76	250.39	2,340.00	9.35
1976/77	257.54	3,430.43	13.32
1977/78	261.84	3,736.96	14.27
1978/79	264.70	4,470.00	16.89
1979/80	268.99	4,338.26	16.13
1980/81	268.99	3,586.96	13.33
1981/82	268.99	3,897.39	14.49
1982/83	268.99	4,213.04	15.66
1983/84	268.99	4,112.61	15.29
1984/85	257.54	2,921.74	11.34
1985/86	234.65	2,324.35	9.91
1986/87	234.65	3,056.09	13.02
1987/88	234.65	3,262.17	13.90
1988/89	234.65	1,972.20	8.40
1989/90	234.65	3,636.50	15.50
1990/91	234.65	3,345.50	14.26
1991/92	234.65	3,000.00	12.78
1992/93	234.65	3,917.30	16.69
1993/94	234.65	3,133.00	13.35
1994/95	234.65	3,055.00	13.02
1995/96 (e)	234.65	3,500,000	14.92

(e): Estimated
Source: PROCAFE

Table 2

Coffee Technology Transfer Project
Comparison of Funds Disbursed to Date
with the Amount Budgeted for the Entire Project
(Through September 30, 1995)
($ 000)

ITEM	TOTAL PROJECT BUDGET	FUNDS DISBURSED TO DATE	% OF TOTAL
USAID FUNDING			
Technical Assistance	5,862	2,544	0.43
Commodities	3,426	1,901	0.55
Construction	158	25	0.16
PROCAFE Operating Expenses	1,312	1,211	0.92
Training	862	310	0.36
Evaluation	136	0	0.00
Audit	244	5	0.02
SUBTOTAL - USAID	12,000.00	5,996.00	0.50
PROCAFE FUNDING (COUNTERPART FUNDS)			
Salaries	3,716	3,855	1.04
Operating Costs	6,688	3,032	0.45
Building Rehabilitation	846	0	0.00
Land Purchase	0	0	0.00
SUBTOTAL - PROCAFE	11,250.00	6,887.00	0.61
GRAND TOTAL - PROJECT COST	23,250.00	12,883.00	0.55
COLLECTIONS -"DOLAR CAFE" (1)	11,250.00	8,480.00	0.75

Note (1): Collections through September 30, 1995

Table 3

EL SALVADOR - INTERNATIONAL AND NATIONAL COFFEE PRICES, AND EXCHANGE RATES, 1960 - 1995

Production Season	Indicative Price Colombia and Other Milds (1) (US$/CWT)	World Price Washed Coffee FOB (2) (US$/CWT)	Domestic Price Internal Purchase (3) (US$/CWT)	Official Exchange Rate (US$1=¢)
1969/70	51.96	38.66	26.12	2.5000
1970/71	45.73	51.35	35.06	2.5000
1971/72	47.87	43.27	27.80	2.5000
1972/73	59.98	48.56	30.60	2.5000
1973/74	67.13	62.29	41.53	2.5000
1974/75	59.89	65.39	35.67	2.5000
1975/76	115.89	62.37	74.40	2.5000
1976/77	234.00	140.81	172.71	2.5000
1977/78	174.52	258.74	109.51	2.5000
1978/79	158.56	171.09	95.54	2.5000
1979/80	174.89	167.75	85.41	2.5000
1980/81	123.11	162.43	53.57	2.5000
1981/82	140.90	125.61	69.77	2.5000
1982/83	130.51	137.02	61.53	2.5000
1983/84	145.83	112.08	70.31	2.5000
1984/85	139.78	138.59	72.97	2.5000
1985/86	196.66	135.85	83.05	5.0000
1986/87	121.78	200.99	54.90	5.0000
1987/88	133.92	107.66	64.69	5.0000
1988/89	124.33	134.2	73.11	5.4500
1989/90	84.56	80.3	53.27	7.2400
1990/91	87.69	79.77	46.12	7.9700
1991/92	67.37	56.95	31.71	8.2000
1992/93	66.53	59.96	31.02	8.7500
1993/94	123.63	93.87	75.61	8.7200
1994/95	177.57	166.58	121.46	8.7200

Source: PROCAFE

(1) World price of coffee similar to that produced by El Salvador

(2) FOB port of export, El Salvador

(3) Prices paid by coffee processors to coffee producers for exportable weight

Table 4

EL SALVADOR - TOTAL EXPORTS, COFFEE EXPORTS AND PRODUCER PRICES, 1970 - 1992.

Production Season	Export Volume		Export Value (FOB)		Percentage Coffee to Total Exports (%)	Export Coffee Price (US$/CWT)	Producer Prices			
							Nominal		Deflated	
	Total Exports ('000 Kgs.)	Coffee (CWT)	Total Exports (US$ 000)	Coffee (US$ 000)			Col./CWT	US$/CWT	Index (Dec. '78=100)	Price Col./CWT
1970/71	445,793	2,560,350.0	236.2	119.1	50.41	46.51	87.65	35.06	45.8	191.38
1971/72	510,393	2,491,650.0	243.2	106.2	43.66	42.61	69.50	27.80	46.0	151.15
1972/73	655,994	3,389,400.0	301.7	130.1	43.13	38.39	76.50	30.60	46.7	163.78
1973/74	602,556	2,616,600.0	358.4	156.8	43.75	59.93	103.83	41.53	49.8	208.69
1974/75	597,016	3,097,950.0	462.5	192.1	41.54	62.02	89.18	35.67	58.1	153.49
1975/76	633,558	3,060,000.0	531.4	168.7	31.74	55.12	186.00	74.40	69.2	268.82
1976/77	657,768	3,258,900.0	743.3	375.8	50.57	115.33	431.78	172.71	74.1	583.01
1977/78	627,171	2,833,800.0	972.4	596.2	61.32	210.40	273.78	109.51	82.8	330.61
1978/79	704,166	2,396,282.6	801.0	385.6	48.15	160.93	238.85	95.54	93.8	254.64
1979/80	898,226	4,561,978.3	1,131.3	675.2	59.69	148.01	213.53	85.41	108.7	196.45
1980/81	657,948	3,654,301.3	1,073.6	308.1	28.70	84.31	133.93	53.57	127.5	105.04
1981/82	529,266	3,528,200.9	796.7	371.0	46.57	105.15	174.43	69.77	146.4	119.14
1982/83	463,203	3,435,890.9	699.4	401.0	57.33	116.71	153.83	61.53	163.6	94.03
1983/84	551,057	3,726,902.6	757.8	471.0	62.15	126.38	175.78	70.31	185.1	94.96
1984/85	477,018	3,131,337.4	717.4	416.0	57.99	132.85	182.43	72.97	206.7	88.26
1985/86	495,087	3,452,383.0	695.2	562.3	80.89	162.87	207.63	83.05	252.9	82.10
1986/87	412,849	3,284,175.7	754.9	359.4	47.61	109.43	137.25	54.90	333.6	41.14
1987/88	367,023	2,458,900.4	590.9	321.9	54.47	130.91	161.73	64.69	416.6	38.82
1988/89	361,548	2,208,052.2	608.8	283.0	46.49	128.17	182.78	73.11	498.9	36.64
1989/90	298,438	3,380,244.8	497.5	261.7	52.61	77.43	133.18	53.27	591.9	22.50
1990/91	423,865	2,631,977.0	582.2	212.2	36.45	80.64	115.30	46.12	727.8	15.84
1991/92	464,383	2,842,694.0	588.0	166.7	28.35	58.63	79.28	31.71	832.6	9.52

Source: PROCAFE

Table 5

EL SALVADOR - EMPLOYMENT AND FARM WAGES IN THE COFFEE SECTOR, 1969 -1994

Production Season	Coffee Production (CWT)	Employment Generated Person-days (1)	Employment Generated Person-years (2)	Daily Wage Harvest Labor (¢/Day)
1969/70	3,208,400	35,292,400	141,170	2.50
1970/71	2,653,040	29,183,440	116,734	3.50
1971/72	3,566,090	39,226,990	156,908	3.50
1972/73	2,920,430	32,124,730	128,499	3.75
1973/74	3,092,610	34,018,710	136,075	4.05
1974/75	5,903,480	64,938,280	259,753	4.25
1975/76	2,340,000	25,740,000	102,960	5.50
1976/77	3,430,430	37,734,730	150,939	8.40
1977/78	3,736,960	41,106,560	164,426	9.25
1978/79	4,470,000	49,170,000	196,680	14.25
1979/80	4,338,260	47,720,860	190,883	14.25
1980/81	3,586,960	39,456,560	157,826	14.25
1981/82	3,897,390	42,871,290	171,485	14.25
1982/83	4,213,040	46,343,440	185,374	14.25
1983/84	4,112,610	45,238,710	180,955	14.25
1984/85	2,921,740	32,139,140	128,557	14.25
1985/86	2,324,350	25,567,850	102,271	14.25
1986/87	3,056,090	33,616,990	134,468	14.25
1987/88	3,262,170	35,883,870	143,535	14.25
1988/89	1,972,200	21,694,200	86,777	16.25
1989/90	3,636,500	40,001,500	160,006	16.25
1990/91	3,345,500	36,800,500	147,202	19.50
1991/92	3,000,000	33,000,000	132,000	19.50
1992/93	3,917,300	43,090,300	172,361	19.50
1993/94	3,133,000	34,463,000	137,852	19.50
1994/95 (3)	3,055,000	33,605,000	134,420	21.50

Source: PROCAFE

(1) One CWT of coffee produced = 11 person-days
(2) One person-year = 250 person-days
(3) Preliminary figures

Table 6

EL SALVADOR - TOTAL GNP, AGRICULTURAL SECTOR GNP AND COFFEE GNP, 1980-1994.
(At Constant 1962 Prices - Thousands of Colones).

Years	Total GNP	Agricultural Sector GNP	Coffee GNP	Percentages of Total GNP		
				Ag. Sector/ Total GNP	Coffee/ Total GNP	Coffee/ Ag. Sector
1980	3,289.3	841.1	292.4	25.57%	8.89%	34.76%
1981	3,016.8	787.5	273.2	26.10%	9.06%	34.69%
1982	2,847.7	750.6	271.1	26.36%	9.52%	36.12%
1983	2,890.4	726.8	242.3	25.15%	8.38%	33.34%
1984	2,935.6	750.9	231.9	25.58%	7.90%	30.88%
1985	2,993.7	742.9	231.1	24.82%	7.72%	31.11%
1986	3,012.5	719.7	214.6	23.89%	7.12%	29.82%
1987	3,093.5	734.7	229.7	23.75%	7.43%	31.26%
1988	3,143.8	727.7	186.8	23.15%	5.94%	25.67%
1989	3,177.0	731.1	189.3	23.01%	5.96%	25.89%
1990	3,285.0	785.5	228.6	23.91%	6.96%	29.10%
1991	3,401.0	785.1	223.2	23.08%	6.56%	28.43%
1992	3,580.1	855.5	252.5	23.90%	7.05%	29.51%
1993	3,761.7	860.1	242.4	22.86%	6.44%	28.18%
1994	3,978.6	859.8	234.2	21.61%	5.89%	27.24%

Source: PROCAFE

Table 7 **Coffee Technology Transfer Project**
Comparison of Technical Assistance Contracted and Used to Date (Through June 30, 1995)

FUNCTION	ORIGINAL PROJECT BUDGET	CURRENT PROJECTION LOP	AMOUNT USED TO DATE
Chief of Party	36	35	22.5
Procurement Specialist	12	16	16
Environmental Advisor	18	34.5	22
Soil Scientist	18	24	18
Plant Genetics Advisor	18	0	0
Pest Management Advisor	18	30	22
Post-harvest Advisor	18	19	19
Microeconomist	24	27	20
Extension Management Advisor	36	34.5	22
Credit Advisor	24	11	12
SUBTOTAL	**222**	**231**	**173.50**
Short-term Advisor	121	112	50
Home office support	35	35	25
TOTAL TA	**378**	**378**	**248.50**

Source: IRI TA Team

Table 8

PROCAFE'S Performance Objectives and Reported Quarterly Progress (June-September, 1995)

CONCEPTOS	PROGRAMADO				CUMPLIMIENTO		
	VIDA DEL PROYECTO	ESTE TRIMEST. JUL-SEP	ACUMUL. A SEPT.	PRÓXIMO TRIMEST. OCT-DIC	TRIMEST. JUL-SEP 1/	ACUM. A SEPT.1/	% PROY.
1. Transferencia de tecnología							
Total de Caficultores atendidos	18.000	568	10.310	180	701	10.713	59,5
Total de hombres caficultores atendidos	16.000	505	9.156	160	524	9.157	57,2
Total de mujeres caficultores atendidas	2.000	63	1.154	20	177	1.556	77,8
Pequeños Caficultores	11.000	342	4.663	123	295	5.073	46,1
UCRAPROBEX	2.120	60		11	26	2/ 933	
UCAFES	2.880	104		24	207	2/ 1.528	
Caficultores Medianos y Grandes	2.000	62		22	173	2/ 942	
Grupos de peq. caficult. organizados	-	15			8	105	
Manzanas Atendidas	120.000	4.000	61.816		3.016	43.961	36,6
No. de renovación total	20.000	80	5.258		283	980	4,9
No. de renovación parcial	30.000	400	13.108		38	4.024	13,4
No. de prácticas culturales mejorad.	70.000	3.520	43.450	1.121	2.602	38.834	55,5
Area nueva					93	123	
Visitas de Asistencia Técnica	91.734	6.033	38.852	2.291	4.089	20.007	21,8
Dias de campo	15	3	17	1	3	15	100,0
2. Capacitación							
Total de Caficultores capacitados					1.494	14.491	
No. de hombres					1.284	12.594	
No. de mujeres					210	1.897	
No. de eventos	1.188	23	548	1	68	829	69,8
Cursos largos	109		50		7	83	76,1
Cursos cortos	220	3	96		19	180	81,8
Charlas técnicas	859	20	402	1	42	566	65,9
3. Investigación de Tecnología							
Análisis de suelo	37.500	1.200	16.300		75	21.667	57,8
Producc. de semilla certificada (qqs.)	400	-	190		39	372	93,0
Producc. concha de café (miles unid.)	6.000	750	3.950		939	3.515	58,6
4. Ingresos de Dólar Café (US$mill)	11,25						

1/ Incluye solamente las nuevas atenciones tanto a nivel de caficultores como de área en manzanas.
2/ El acumulado de cumplimiento de estas metas no incluye información de 1993.

Table 9

Number of Small Producer Groups Attended by PROCAFE Extensionists

Number of Small Producer Groups Attended by Extension Technicians	Number of Technicians	Percentage of Technicians
1	8	27%
2	1	3%
3	5	17%
4	5	17%
5	3	10%
6	3	10%
7	3	3%
8	1	3%
11	1	3 %
	30	100 %

Mean Groups attended = 3.9
Total number of groups attended = 118

Table 10

Total Number of Small Producers Affiliated with Small Producer Groups Attended by PROCAFE Extensionists

Total Number of Small Producers in Groups Attended by Each Technician	Number of Technicians	Percentage of Technicians
9-30	11	37%
31-60	12	40%
61-90	4	13%
91+	3	10 %
Total	30	100 %

Mean Number of Small Producers Attended through Groups by Technician= 45.8
Total Number of Small Producers Attended through Groups= 1,374

ANNEX II

CHARTS AND FIGURES

MID-TERM EVALUATION

OF

THE COFFEE TECHNOLOGY TRANSFER PROJECT

Figure 1

PROCAFE ORGANIZATIONAL STRUCTURE

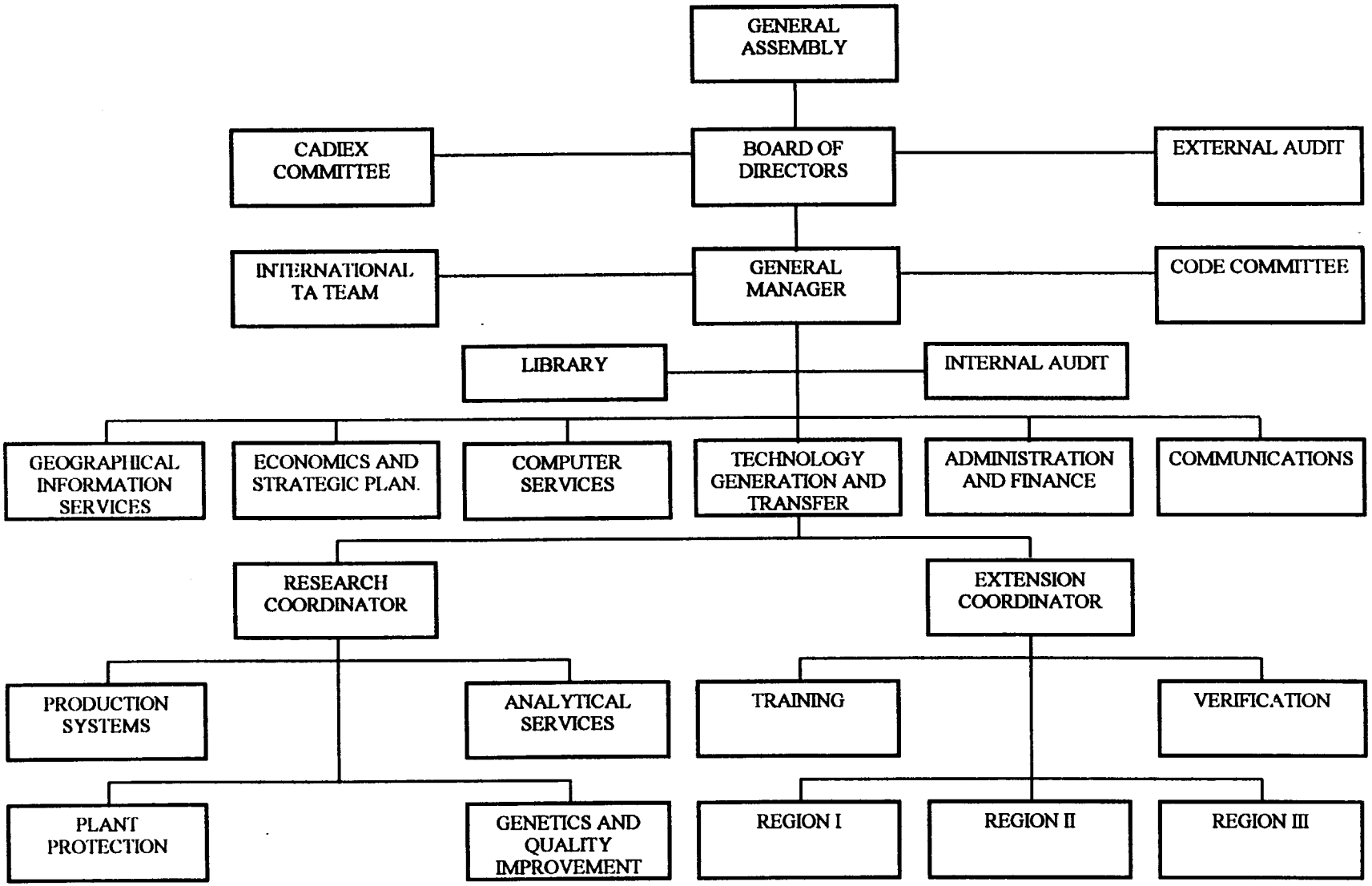

Figure 2

PROCAFE Personnel Classified by Gender and Job Category
(As of September 30, 1995)

PERSONNEL BY CATEGORY	MEN	WOMEN	TOTAL
1. RESEARCH			
EXECUTIVES	4	3	7
RESEARCH SCIENTISTS	17	9	26
RESEARCH TECNICIANS	25	3	28
SUPPORT PERSONNEL	15	10	25
SUB-TOTAL	61	25	86
2. EXTENSION			
EXECUTIVES	5	1	6
EXTENSION AGENTS (1)	32	3	35
EXTENSION TECHNICIANS (1)	30	0	30
SUPPORT PERSONNEL	11	20	31
SUB-TOTAL	78	24	102
3. ADMINISTRATION			
EXECUTIVES	2	2	4
ADMINISTRATIVE EMPLOYEES	6	3	9
ADMINISTRATIVE TECHNICIANS	7	7	14
SUPPORT PERSONNEL	15	10	25
SUB-TOTAL	30	22	52

NOTE: (1) Forty-six field extension agents are at the service of coffee farmers, of which two are women.

TOTAL PROCAFE FOUNDATION EMPLOYEES			
	MEN	WOMEN	TOTAL
EXECUTIVES	11	6	17
RESEARCH, EXTENSION AND ADMINISTRATIVE SENIOR EMPLOYEES	55	15	70
RESEARCH, EXTENSION AND ADMINISTRATIVE TECHNICIANS	62	10	72
SUPPORT PERSONNEL	41	40	81
GRAND TOTAL	169	71	240

Figure 3 **Delivery Times of Project Vehicles and Computer Equipment**

	1993				1994				1995			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Passenger Vehicles		6 Pickup trucks (From SETEFE Project)		4 Jeeps Cherokee 1 Jeep (IRI)	12 Ford Pickup trucks 1 Van	37 Jeeps Cherokee and Wrangler						23 Ford Pickup trucks
Motorcycles						13 Yamaha (Local purchase)						
Computer/ Peripherals		6 Computers (From SETEFE Project)				20 Comput. (Imported)	4 Comput. (Local Purchase)	4 Comput. (Local Purchase)				

Source: PROCAFE; IRI TA Team Procurement Specialist

Figure 4 CADIEX: Proposal to PROCAFE Board of Directors

Presented October 1995

(Partial Summary Translation)

The priority function of PROCAFE is technology generation, focusing on practical and immediate solutions the principal problems facing the Salvadoran coffee producer. This mandate implies that PROCAFE will access those technologies from worldwide sources which are relevant to the national coffee sector and can be adapted to local conditions. It must review and revise its methodology for establishing research priorities, and establish mechanisms to facilitate exchanges among the producer, researchers and extension agents.

RESEARCH PRIORITIES

1. Profitable Coffee Production: Recommend production systems and practices which will lead to profitable and sustainable production through efficient use of resources, cost reduction and non-polluting technologies. PROCAFE research must include an economic analysis of recommended technologies; criteria that will enable the producer to select among them. PROCAFE must validate recommended technologies as part of an integrated package, which will permit the producer to evaluate the interrelations among the several factors of production. **A fundamental element of technology validation is the economic/financial analysis, without which the technology proposal will be considered incomplete.** PROCAFE should aid the producer to manage his farm and production as a profitable business, and place strong emphasis on economic research.

2. Small Farm Diversification: PROCAFE should promote small farm diversification, providing information and assistance for inter- and/or substitute-cropping alternatives.

3. Farm-specific Recommendations: The recommendations made by PROCAFE should not be in general terms, but rather, according the actual conditions characterizing the farms being assisted.

4. Coffee Quality: PROCAFE should orient its research to maximize the quality, uniformity and productivity of recommended varieties. In order to achieve this objective it is necessary to know the preferences of the international coffee market and genetic resistance and tolerances.

5. Post-Harvest Processing: PROCAFE should expand its research on coffee processing and design a strategy which reduces the consumption of water and energy, and minimizes the negative effects on the environment.

6. Bio-and Ecologically-Sound Technologies: PROCAFE should give priority to generating and transferring biotechnologies consistent with production and environmental sustainability. Emphasis should be given to those technologies which recover and maintain ecological quality, including integrated pest and disease control, shade management, soil fertility and quality, and organic production systems.

Figure 5

RESEARCH PRIORITIES
(PLANT PROTECTION PROGRAM)

Production Problem	Priority	No. of Mzs. Affected	Critical Area % of Total	Critical Area No. of Mzs.	Production Loss (QQ Café Oro)	Value of Loss (000 Colones)	Control Cost (000 Colones)
Broca	1	207,000	34%	70,000	70,000	73,100	17,500
Soil Insects	2	37,000	69%	25,600	76,800	80,100	14,300
Nematodes	3	23,000	43%	10,000	50,000	52,200	6,800
Antracnosis	4	92,000	25%	23,000	69,000	72,000	12,000
Rosellinia	5	85,000	3%	2,300	29,900	31,200	27,600
Weeds	6	230,000	4%	10,000	23,400	24,700	6,300
Total		674,000	21%	140,900	319,100	333,300	84,500

Note: Figures are estimated annual losses

Figure 6

PROCAFE: Projects Related to the Environment

(October, 1995)

1. Construction and updating of a digital data base on pesticides used in coffee.
2. Construction and updating of a digital data base on coffee *beneficios* operating in El Salvador and their nearest rivers and creeks.
3. Weekly monitoring of river water quality in the El Molino river in Ahuachapan.
4. Review and transfer of new waste disposal technologies for coffee *beneficios*.
5. Studies of non-point source pollution from a traditional coffee farm.
6. Review and transfer of new technologies for the management treatment of industrial volumes of coffee pulp.
7. Studies of vermiculture in coffee pulp.
8. Quantification of non-registered pesticides in coffee pulp.
9. Installation of automatic weather station network (seven stations) in the coffee growing areas of El Salvador.
10. Massive advertising campaign to preserve flora and fauna associated with coffee plantations.

ANNEX III

PEOPLE MET

MID-TERM EVALUATION

OF

THE COFFEE TECHNOLOGY TRANSFER PROJECT

PERSONS AND ORGANIZATIONS CONTACTED

PROCAFE:

Dr. Eduardo Barrientos, President of the Board of Directors
Lic. René Martinez, General Manager
Ing. Salvador Castellanos, Extension Advisor
Ing. Manuel Meza, Director of Research and Extension
Ing. Felipe Cerón, Coordinator for Research
Ing. Antonio Muñoz Ordoñez, Coordinator for Extension
Lcda. Patricia de Jiménez, Director for Administration
Lcda. Julia Mena, Director of Communications
Lcda. Silvia de Machuca, Director of Planning
Ing. N. Irigoyan, Coordinator for Production Systems
Ing. Manuel Vega, Coordinator for Plant Protection
Ing. Zenia Morán, Coordinator for Genetics
Ing. Luis Tiraboschi, Coffee Processing
Ing. Gerardo Lardé, Coffee Processing
Ing. Carlos Eduardo, Coordinator for Small Producers Office
Ing. Nelson Chacón, Chief of the Department of Validation
Ing. Victor Vásquez, Chief of the Department of Training
Ing. Carlos Torres, Coordinator of Region I
Ing. Luis A. Leon, Coordinator of Region II
Ing. Tomás Martinez Pacheco, Coordinator of Region III
Ing. Oscar Gómez, Department of Production Systems
Ing. Miguel Rodriguez, Department of Genetics
Lic. José Manuel Meza, Manager, Technology Transfer
Ing. César Rivas, Extension, Region II
Ing. Carlos Molina, Extension, Region II
Ing. Abraham Vásquez, Extension, Region III
Lcda. Daisy Sorto, Chief of Personnel

INTERNATIONAL RESEARCH INSTITUTE (IRI):

Dr. Paul Duffield, Advisor in Administration and Chief of Party
Dr. Mario Valderrama, Economics Advisor
Dr. Francisco Artigas, Environmental Advisor
Dr. Rutilio Quezada, Advisor in Plant Protection
Dr. Rafael Ledesma, Extension Advisor
Mr. Gus Ganiko (Clapp and Mayne, Inc.), Procurement Specialist

USAID/EL SALVADOR:

Mr. Gordon Straub, Director, Productive Resources Office (PRO)
Mr. David Gardella, Chief, Productive Enterprises Division (PED)
Mr. Luis A. Gonzalez, Deputy Chief, PED

OTHER:

Sr. Héctor Alfonso Vides, Gerente, Sociedad Cooperativa La Majada
Sr. Armando Márquez, Presidente, Sociedad Cooperativa La Majada
Sra. Ana Hojelio Valles de Alfaro, Grupo de Pequeños Productores
Sr. Ciero Gonzales Garcia, Presidente de la Cooperativa El Clavelito, Ahuachapan
Sr. Fidel Santana, Grupo de Pequeños Productores El Rosario, Ahuachapan
Sr. Jose Peña, Pequeño Productor, Ataco, Ahuachapan
Ing. Angel Arévalo, Productor Mediano, Ataco, Ahuachapan
Sr. Narciso Toquji, Pequeño Productor, Jucauapa
Sra. Rosa Maria Romero, Encargado Cooperativa Jucuapense
Sr. Manuel Hernandez, Cooperativa San Mauricio, Santiago de Maria
Sr. Antonio Chavez Moreno, Jefe de Producción, Cooperativa Las Lajas
Sr. German Humberto Chavez, Gerente, Cooperativa Las Lajas, Juajua
Sr. Manuel Moran, Gerente, Cooperativa La Victoria, Juajua
Dr. José Arístides Arévalo and María R. de Arévalo, coffee producers, Santa Ana
Sr. Narciso Tuquhe, coffee producer, Santiago de Maria
Sra. Ana Ofelia de Baile, Grupo Asuchillo, San Sebastian
Grupo El Rosario: Fidel Zaldaña, Rigoberto Escobar and César Saldaño
Grupo El Listón: Cruz Zaldaña, Francisco Antonio Zaldaña Garcia
Grupo Cusmapa (ACATA): Antonio Hernández
Cooperativa El Clavelito: Isidro Gonzales, José Rafael Hernández
Cooperativa COAUSOLES: Carlos R. Guillén - President, Vigilance Committee
Cooperativa COAUSOLES: John Kenneth Lowe - Secretary, Board of Directors

ANNEX IV

BIBLIOGRAPHY

MID-TERM EVALUATION

OF

THE COFFEE TECHNOLOGY TRANSFER PROJECT

LIST OF DOCUMENTS CONSULTED

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ANNEX V

SCOPE OF WORK

MID-TERM EVALUATION

OF

THE COFFEE TECHNOLOGY TRANSFER PROJECT

STATEMENT OF WORK

I. PROJECT TO BE EVALUATED

This scope of work is for the mid-term evaluation of the Coffee Technology Transfer Project No. 519-0362, which is carried out under a Cooperative Agreement between USAID/El Salvador and the Salvadoran Coffee Research Foundation (PROCAFE). The Project began July 1992 and will continue until July 31, 1997 at a cost of $12,000,000 in AID funds.

II. PURPOSE OF THE EVALUATION

This mid-term evaluation will focus on the Project's progress to date and recommend implementation actions. It will consist of a review of PROCAFE's ability to support coffee research and extension, the structure of the programs, an enumeration of the beneficiaries of both research and extension and an estimation of the economic effects of project-sponsored technology. Principal areas of emphasis will be the management and goal-setting process for research, the planning and management of budgets, the breath and coverage of the extension program, the feedback loop from farmers to the researchers and the sustainablity of PROCAFE without external donor assistance. This mid-term evaluation will also focus on the success of the Government of El Salvador (GOES) decision to privatize coffee technology generation and extension.

Specifically, the Project will be evaluated on four levels: 1) Project Inputs/Outputs; 2) the performance of the coffee sector as a whole and the effectiveness of the Project in revitalizing it; 3) the impact at the farm level of project activities on small farm operations and the well-being of small farm families; and 4) the impact of the privatization of coffee research and extension on the coffee industry.

At the input level, the evaluation will assess the adequacy and movement of all inputs to the Project. The output level of the evaluation will involve measurement of the services, such as expansion and strengthening of the extension services; enhancement of PROCAFE's management capacity, financial controls, and information services; and, number/appropriateness of new or adapted technologies ("products") developed or in the process of development by the Research Division, etc. At the sector level, the relevant variables will be derived from national accounts and agricultural sector data collected by PROCAFE, Consejo Salvadoreño del Café (CSC), and DGEA. They include data such as the change in national production, area planted, yields, foreign exchange earnings and employment.

III. BACKGROUND

The Project supports the newly created foundation, PROCAFE, a private, non-profit organization in charge of generating and transferring new coffee production technology to almost 15,000 small growers and cooperative members. PROCAFE was founded in 1991 by coffee producers to receive the assets of the privatized Salvadoran Institute of Coffee Research (ISIC) and to take over the responsibility for coffee research and technology transfer. PROCAFE is governed by a Board of Directors representing the Coffee Processors Association (ABECAFE), the Association of Coffee Growers (ACS or Cafetalera), the Union of Agrarian Reform Cooperatives Processors and Exporters (UCRAPROBEX), and the Union of Cooperatives of the Coffee Sector (UCAFES), thus representing all affiliated coffee growers through one or more coffee associations. The Board administers research

and extension funded by a "check off" fee of one dollar per 100 lbs. of coffee exported collected through the Salvadoran Coffee Council.

The Project was designed under the assumption that there were approximately 49,000 producers (15% of El Salvador's estimated 317,000 farmers). Yet, the exact size of the coffee industry is unclear since no agricultural census has been conducted since 1971, when 147,000 hectares (210,357.manzanas) were reported planted in coffee.

It is estimated that almost 27,000 producers are independent small holders who cultivate fewer that five hectares of each. In addition, some 14,000 members of 107 agrarian reform cooperatives collectively cultivate slightly more that 21,000 hectares of coffee. Together they cultivate more than 25% of the coffee land in El Salvador. Independent small producers, due to the size of their holdings and current low productivity, rarely sustain their families solely from income derived from coffee sales. They combine coffee production with other crops and are intermittently employed as off-farm labor.

The 4,424 producers with holdings from 5 to 20 hectares cultivate some 22,000 hectares or 11% of the total coffee land. This group includes resident owners who derive their entire income from coffee.

About 46% of all coffee lands are holdings of 20 to 100 hectares. These provide a major source of income for their owners and, even when their owners have other business interests, the plantations are normally run with professional diligence and sophistication.

There are 420 non-agrarian reform properties with a total of 100 or more hectares which total about 36,000 hectares, or 18% of total coffee holdings. These are frequently part of a vertically integrated production and sales process which links an exporter-owned plantation to a processing plant.

There are 80 to 100 processing plants, "beneficios", scattered throughout El Salvador. Some are abandoned, and many are antiquated. Nevertheless, their collective capacity is adequate to process the present and near term projected production of Salvadoran coffee.

A. Goal and Purpose of the Project

The Project directly contributes to SO#2 "Broad-based Economic Growth Increased" and SO#5 "Improved Environmental & Natural Resource Management". The Project Planned EOPS, fully support Program Outcome 2.3 "Increased Exports" and PO 5.3 "Improved productive activities consistent with sustainable natural resource management", through the Components of Research, Extension and Economic Studies, by creating and extending new technology in coffee production consistent with the protection of the environment. The goal to which the Project contributes is to revitalize the coffee industry in El Salvador. Attaining the goal implies an increase in employment, foreign exchange earnings, government revenues and generation of investment funds for development of other sectors of the economy.

The purpose of the Project is to improve per unit yields and overall industry productivity for coffee producers, with an emphasis on small producers. Specifically, PROCAFE is to:

1. provide technology transfer and technical assistance on coffee holdings operated by 15,000 small farmers and 46 agrarian reform cooperatives;

2. reach an average yield of 20 quintals (qq) of coffee per manzana (from 9 qq/manzana in 1991) by means of environmentally benign technology packages; and

3. become a capable, permanent coffee research and extension institution.

B. Specific Program Components:

The Project consist of four components: research, extension, economic studies, and administration/support.

1. Research (Technology Acquisition and Development)

The research division consist of six technical departments and two staff offices under the supervision of a research director. Five of these departments, Soil Science and the Environment, Agronomic Management, Plant Protection, Genetic Management and Agroindustrial Management carry out coffee technology research. The sixth, Analytical Services, supports the operations of PROCAFE's research departments. The staff offices are environmental management and statistics.

The Project under Contract No. 519-0362-C-00-3172-00, with IRI Research Institute Inc., from Stamford, Connecticut, is providing long-term experts, as well as short-term technicians, in coffee research in the above described areas to assist PROCAFE to structure and implement a program of technology acquisition and development. The Project also financed the acquisition of vehicles, and laboratory and research equipment. With IRI support, PROCAFE is implementing systems of institutional management which have heretofore never existed in Salvadoran research entities. These systems include strategic planning of the research agenda with specific activities aimed at solving problems which constrain production and have been identified by producers and verified by extensionists.

a. Technical Assistance

On July 15, 1993, the three-year contract was signed with IRI Research Institute Inc., with the objective of providing technical assistance to PROCAFE for the successful development and implementation of an appropriate, privately managed coffee research and technology transfer agenda. The contractor's major responsibility is to improve the institutional development of PROCAFE, its staff capabilities, and its research and technology transfer management systems.

IRI provides long-term advisors in the following areas:

Position	Person Month
Chief of Party	36
Procurement Services Specialist	12
Environmental Advisor	18
Soil Scientist	18
Plant Genetics Advisor	18
Pest Management Advisor	18
Micro economist	24
Post Harvest Management Advisor	18
Credit Advisor	24
Extension Management Advisor	36
TOTAL	222

b. Commodities:

At the beginning of the Project, under a sub-contract with the Ministry of Agriculture, PROCAFE began using the old ISIC facilities that included transportation and laboratory equipment. The commodity requirement for project-funded equipping and refurnishing of the laboratory and experimental areas have been determined by the technical assistance team and PROCAFE staff and approved by USAID.

c. Training:

Throughout the improvement of the research program, the project is funding both short- and long-term training. The short term training is given in the United States as well as in third countries such as Costa Rica and Colombia, and is being supported by the technical assistance team. Long-term training (Masters degree) is being provided to six PROCAFE's technicians through scholarships in Mexico and Puerto Rico.

2. Technology Transfer

PROCAFE's Technology Transfer Division consists of three departments: Technology Transfer, Communications and Training.

The Division has 51 full-time extension agents which provide support to the coffee growers, with special emphasis on small coffee farmers, in 14 branch offices in 3 geographic regions of El Salvador. These Agents are supported by 3 trainers (one in each regional office), 1 technician validating technology, 2 business administrators, and 3 advisors (one long term advisor from IRI Research).

PROCAFE's extension program to smaller farmers follows two main lines: one type of extension deals with small farmers grouped in cooperatives affiliated to the UCAFES and UCRAPROBEX; and the other type deals with informal groups of independent farmers. Identical technology is offered in each extension methodology, but the means of accomplishing the transfer to farmers is different. The aim of the extension program is not only to increase production but to increase the farmer's profit per unit of area.

Forty-six reform coops under UCRAPROBEX are being treated as single production units. Extension presentations and training is being offered to the technical staff and field foremen of these farms. Four non-reform cooperatives (approximately 600 beneficiaries) and the 23 coops affiliated to UCAFES (approximately 5,500 members) within UCAFES sponsorship control their own land, and are thus considered individual farmers and beneficiaries.

Approximately 30,000 small coffee farmers are not associated with cooperatives in the two federations. In order to reach these unaffiliated farmers, PROCAFE has used agricultural extension methods proven in other countries. The Project is assisting PROCAFE to extend improved production technology to small farmers within the coffee industry. Training in extension program management will be provided to the extensionists over the first years of the Project. Extensionists will be able to provide farmers with recommendations on production and handling of the crop, use of credit and how to access it, and marketing. Field days and other mass gatherings in production areas are conducted to promote the use of modern coffee production technology.

3. Economic Studies

The Economic Studies and Information Department carries out economic and statistical studies required to evaluate the structure, production practices, costs, returns and investment requirements of the coffee industry. The economic department determines the relative cost of production and assures that technological innovations meet profitability as well as production criteria. The Department also does coffee credit analysis and studies producer's access to, and use of, credit for coffee production and investment. The Economic Studies and Information Department is establishing a statistical base for analysis of the industry, which includes a census of coffee growers, estimation of coffee costs for various strata of growers and measures of profitability.

4. Administrative and Management Support

PROCAFE's Director is assisted by a Project-funded Chief of Party (COP). The COP advises senior management in the areas of research, extension, economic studies, and assists the General Manager in administration issues.

Under the Project, PROCAFE is developing a personnel system which insures that employees are selected and retain on basis of merit. The Personnel office includes an escalafón that lays out a career track for employees and provides financial and educational incentives for employees. PROCAFE is developing and implementing a vehicle control and pooling system that ensures that project vehicles are used in research and extension activities. Computerized systems of communication, commodity

control, financial management, data storage and analysis, and evaluation likewise is being implemented.

IV. STATEMENT OF WORK

The evaluation team will thoroughly review the Cooperative Agreement along with relevant project documents including quarterly and semi-annual reports, diagnostic studies, business plans and previous evaluations. This will be followed by in-depth discussions with AID and PROCAFE officials and site visits to assisted coffee producers of all strata.

The evaluation team will report its findings, present conclusions that are based on the findings, point out examples of noteworthy accomplishments, and recommend improvements based on the overall evaluation exercise. Finally the team is expected to list and thoroughly discuss any other factors that may result in modifications to the Project within the context of the actual and near future environment.

In order to carry out the evaluation, the team will respond to the following questions and concerns:

A. Review and assess the Research Program of PROCAFE in light of the clientele and the protection of the environment.

B. List all targets and activities, assesss progress toward achieving targeted outputs and activities, and note problems encountered in reaching targets.
Are targets attainable?
Are the targets being met?
Do the clients value the assistance?
Do they follow recommendations?
Is the size of the Extension Department consistent with the needs of the clientele?

C. Assess the impact of the technology transfer program to:
Independent small and medium size coffee farmers
Farmers associated with UCRAPROBEX
Farmers associated with UCAFES
Protection of the Environment
What are the constraints hindering full compliance with recommendations from the transfer of technology, if any?

D. Assess PROCAFE's capabilities in managing the research and extension programs.
Are PROCAFE's management controls adequate for a program of that size?
Is the personnel incentive program (escalafón) fulfilling expectations?
Are the management controls in place and operational, a.i. "motor pool", vehicle control system, computerized communication, commodity control, financial management, data storage and analysis, etc.?

E. Assesss PROCAFE's capacity of becoming a self sustained institution.
What activities need to be continued to ensure sustainability?
Does PROCAFE have a self sustainability Plan?
Is it technically/financially feasible?
Could PROCAFE continue its assistance to the target groups after AID assistance has terminated?
What macroeconomic policies can affect the chances for benefit sustainability?
What is PROCAFE relationships with other donors?
What further actions should PROCAFE take to insure its sustainability?
Is the "$ check-off" the correct mechanism to support PROCAFE after AID assistance terminates?

F. Assess the impact the Long and Short-term Technical Assistance team has had on PROCAFE.
Has the assistance been cost-effective?
Has it been timely, high quality and appropriate?

G. Assess what the impact of the Project on gender.
What is the participation of women in the coffee industry?
Has PROCAFE's influence been decisive in the increment of women participation?
Does PROCAFE's activities assisting in the production of coffee promote the active participation of women?

V. METHODS AND PROCEDURES

After the arrival at post the consultants will, over a two day period, be briefed by AID and PROCAFE and will thoroughly review pertinent documents.

The consultants will then prepare a work plan. The work plan will schedule activities of each team member, describe the methodology to be followed, specify the information to be gathered, and the use of this information in the analysis to be undertaken.

The work plan must be approved by the AID Project Manager and PROCAFE so that all parties are in agreement on the points to be addressed in the evaluation, and the methodology to be followed. During the next four weeks, the team will carry out the approved work plan including personal interviews, review of documents and field visits and prepare the reports to be written and delivered as discussed below.

VI. DELIVERABLES

A. A Draft Report

Five English copies must be delivered to the AID project manager seven working days prior to the scheduled date of departure of the team. The consultants will present the draft report to the designated AID and PROCAFE officers in an evaluation meeting three days after the date of submission of the draft report.

B. A Final Report

Within four weeks after the departure of the evaluation team, the firm will deliver ten copies of the final report in English and ten copies in Spanish, incorporating changes suggested in the review meeting. The final report must contain the following:

1. Executive Summary

    a. Development objectives of the Project
    b. Purpose of the evaluation
    c. Study method
    d. Findings
    e. Conclusions
    f. Recommendations
    g. Lessons learned
    h. Discussion of sustainability issues.
    i. Discussion of impact of the Project on Gender

2. Table of Contents

3. Body

    a. Purpose and study questions of the evaluation.
    b. Economic, political, and social context of the project.
    c. Team composition and study methods (1 page maximum).
    d. Evidence/findings of the study concerning the evaluation questions.
    e. Conclusions and recommendations based on the study findings and conclusions, stated in succinct language.
    f. Recommendations based on the study findings and conclusions stated as actions to be taken to improve project performance.
    g. The body of the report should not be longer than 35 pages.

4. Lessons Learned

    This section should present, to the extent feasible, any development benefits that have resulted from the Project to date, including a discussion of the techniques, approaches, Project design considerations, which proved to be most effective or had to be changed and why. A discussion of what aspects of the Project have not worked or have not been carried out as designed, and why, should also be included. This section should also present design considerations which proved to be most effective or had to be changed in relation to the impact of the Project on women, and self-sustainability of PROCAFE.

5. Appendices

    a. Evaluation scope of work.

b. List of documents consulted.
c. List of individuals and agencies contacted.

C. Project Evaluation Summary

The Evaluation team will complete the abstract and detailed summary portion of the "Agency Evaluation Summary". USAID/El Salvador will provide the team with appropriate forms.

VII. TEAM COMPOSITION

The work in El Salvador is scheduled to commence on or about October 23, 1995 and to be completed on or about November 25, 1995. We estimate that completion of the tasks herein described will require 78 person days of effort, out of which 72 will be completed in El Salvador, and six in the Home Office. A six-day work week is authorized. The estimated level of effort includes four weeks for the Agriculture Extension Specialist, and for the Agriculture Research Specialist and five weeks for the Evaluation Especialist (Team Leader).

A. Evaluation Specialist

The Evaluation Specialist will serve as the Team Leader for the Contractor. He/She must have extensive experience in analyses and evaluations of Latin American USAID funded projects in agriculture development. His/Her work history should include strategic planning and financial/economic analyses, self- sustainability, and institutional development with at least one assignment as team leader. The successful candidate should have an advanced degree in an agricultural discipline or business administration appropriate to coffee research and extension. Spanish language ability at FSI 3 level is required.

B. Sustainable Agriculture Specialist

Sustainable Agriculture Specialist should be able to assess current strengths and weaknesses of PROCAFE's coffee extension and technology transfer program. He/She should be well acquainted with technology transfer methods and management systems. Familiarity with modern coffee production would be especially helpful. The successful candidate should have an advanced degree in Agricultural Economics, Rural Sociology or Business Administration. Spanish language ability at FSI 3 level is required.

C. Agriculture Research Specialist

The Agriculture Research Specialist should be able to assess PROCAFE's coffee research program. He/She should be well acquainted with the modern methods of generation of applied technology, specially in the tropics, consistent with the conservation of natural resources. Familiarity with modern coffee production would be especially helpful. The successful candidate should have an advanced degree in an agriculture discipline appropriate to coffee production and research. Spanish language ability at FSI 3 level is required.