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Report on the Mid-Term Evaluation

of the

SMALL FARMER DIVERSIFICATION PROJECT
(520-0255)

ORD/USAID Guatemala

August 2, 1985

TABLE OF CONTENTS

| | PAGE |
|---|------|
| I. EXECUTIVE SUMMARY | 1 |
| II. INTRODUCTION | 5 |
| A. Purpose of the Evaluation | |
| B. Methodology of Evaluation | |
| C. Evaluation Team | |
| III. PROJECT DESCRIPTION | 7 |
| A. Objectives | |
| B. Projected Outcomes | |
| C. Financial Support | |
| IV. PROJECT IMPLEMENTATION | 9 |
| A. Staffing | |
| 1. Personnel of the Implementating Agencies | |
| 2. Technical Assistance | |
| 3. Coordinating Unit | |
| B. Field Work | |
| C. Training | |
| D. Logistical Support | |
| E. Financial Support | |
| V. EVALUATION OF PROJECT IMPLEMENTATION | 23 |
| A. Project objectives | |
| B. Staffing | |
| 1. Personnel of the Implementating Agencies | |
| 2. Technical Assistance | |
| 3. Coordinating Unit | |
| C. Field Work | |
| D. Training | |
| E. Logistical Support | |
| F. Financial Support | |
| G. Organizational and Institutional Support | |
| H. Institutional Coordination | |
| I. Use of Logical Framework | |

| | | |
|------|---|----|
| VI. | OVERALL OBSERVATIONS AND SUMMARY | 52 |
| | A. Project Design | |
| | B. Project Implementation | |
| | 1. Small Farm Management Survey | |
| | 2. Farmer Impact | |
| | 3. Loan and Grant Fund Utilization | |
| | 4. Institutional Incentives | |
| | 5. Training | |
| | 6. Technical Assistance | |
| | C. Project Changes | |
| | 1. Extension of time | |
| | 2. Project redesign | |
| VII. | RECOMMENDATIONS | 71 |
| | A. Small Farm Management Surveys | |
| | B. Model Farm Sites | |
| | C. Organization | |
| | D. Training | |
| | E. Technical Assistance | |
| | F. Logistical Support | |
| | G. Construction | |
| | H. Project Changes | |
| | I. Financial Support | |
| VII. | APPENDIX | 80 |
| | A. Terms of Reference for Evaluation Team | |
| | B. Evaluation Team | |
| | C. Itinerary of Evaluation Team | |
| | D. List of Agencies and Persons Visited | |

I. EXECUTIVE SUMMARY

1. The evaluation was undertaken by a team composed of two members from the U.S. and three Guatemalans. The report represents a consensus of all members.
2. The project was slow in getting started due to differences of opinion as to how it should proceed. As a result, implementation of field work finally proceeded without benefit of the baseline surveys contemplated in the original design. Furthermore, the full combinations of technologies needed in the "diversified farms" in the project were not available from ICTA, and they had to be constructed from the knowledge and experience of technicians in DIGESA, DIGESEPE and EAT.
3. The 44 "diversified farms" that have been established during 1985 show remarkable promise of fulfilling the expectations in the original project design. However, the manner in which they were selected and implemented dictates a considerable change in attitude toward their role in achieving the overall project objectives. The evaluation Team feels that this first group of "model farms" should really be thought of as preliminary testing sites for the technologies that are being put into operation. The administrative personnel in the project should regard these as a very useful and necessary first step in the overall project implementation. The field personnel should continue to treat them as demonstration "Model Farms". ICTA should be brought back into the process to monitor and evaluate the technologic, economic and social behavior of the technologies

being used. And maximum information should be collected and used to guide the design and implementation of the next generation of "Model Farms".

4. Implementation of the project has suffered from difficulties in organizing and coordinating the efforts of the four participating agencies. The recent MAGA Reglamento promises to provide for clearer lines of authority and responsibility, but CORECO has a vital role that must be performed well if the project is to prosper.
5. Staffing of the project by the participating agencies has proceeded reasonably well, but the training and the logistical support of the personnel of the lower levels has limited their productivity. Several strong recommendations are made for improving this segment of the program where the actual work gets done and on which project impact primarily depends.
6. The project has essentially completed the acquisition of the budgeted vehicles, but the purchase of equipment and material essential to the project is behind schedule. Delays in processing documents and repayment of expenses has had a serious adverse effect on the project. Several recommendations are made for improving this situation.
7. Construction of the laboratory facilities at ICTA are underway, but the diagnostic laboratory for DIGESEPE and the four training centers for DIGESA have not been started. The ICTA installation should be completed as soon as possible. Other construction proposals should be reviewed in

light of rising costs. It is quite possible that such a review would indicate either reducing the number of facilities or the alternative use of these funds on items of higher priority at the present status of the project.

8. Technical assistance provided to the project has been judged to be varied but adequate overall, with the major exception of lack of assistance in the marketing aspects of the horticultural crops included in the project. This deficiency should be attended immediately. The future role of technical assistance should lend strong support to a) bringing ICTA back into active participation in monitoring and evaluating existing model farm technologies, b) assisting DIGESA and DIGESEPE in utilizing existing Model Farm experiences to plan the next generation of model farms and c) in building a strong bridge between research and extension. The evaluation team feels this role can best be performed if most of the TA members are located within the participating organizations, and several recommendations are made in this respect.

9. The present status of the project suggests the need to extend the time of the project for 2 to 3 years to allow the completion of the projected four years of field operations. This will require additional funding to extend the technical assistance and the coordination to the end of the project. It should also include additional support for the field workers at the lowest level.

10. The overall objectives and the major lines of implementation of the project remain unaltered. Therefore, it does not appear necessary to formally redesign the project. However, there have been a number of significant changes in implementation that will require bringing project documents into agreement with the present status and future plans for the project.

II. INTRODUCTION

A. Purpose of the Evaluation

This is a mid-term evaluation of the Small Farmer Diversification Systems Project. "The evaluation was expected to provide concrete, specific guidance for the implementation of the project during the remaining two years as well as quantify the projects immediate impact on the target area".

The Mid-Term evaluation called for in the Project Paper, for early 1985, was based on the assumption that early project implementation would have proceeded more rapidly than it has. Nevertheless, this is an appropriate time to review and revise, if necessary, the plans and arrangements which have been made for the project management, administration, coordination, technical assistance, training, logistics, construction, identification of appropriate farmer cooperators and farm modelling.

The Terms of Reference for the evaluation are included in appendix A.

B. Methodology of Evaluation

The methodology employed by the Evaluation Team followed closely that proposed in the Terms of Reference. An initial visit was made with the heads of the participating agencies in Guatemala City. This was followed by extensive visits and interviews with administrators in Region I and visits to field sites in 6 of the 7 Departments in which diversified farm programs are

underway. Then there was an intensive review of project documents and reports. During the above activities, there was continuous discussion and interaction among the Team members. The drafting of the report was undertaken by all members of the Team as joint effort and the report represents a consensus among team.

The full itinerary of the Team is given in Appendix C and the list of agencies and persons visited is given in Appendix D.

C. Evaluation Team

The Evaluation Team was composed of two members from the U.S. and three members from Guatemala. Their special fields of expertise are indicated below:

Danilo Palma - Anthropology / Sociology
Ricardo Santa Cruz - Agronomy / Economics
Mario Loarca Controller / Administrator
Melvin Blase - Agricultural Economics
J.A. Rigney - Farming Systems - Team leader

The complete addresses for the Team Members are given in Appendix B. The present responsibilities of Santa Cruz and Loarca were assumed at the same time they joined de Evaluation Team.

III. PROJECT DESCRIPTION

A. Objectives

The stated goal of the project is to "improve the well being of rural Guatemalans living in the Northwestern highlands". This goal is to be realized by "stimulating the production of high value labor intensive crops (and intensive livestock production), thereby diversifying production away from the traditional corn and beans". The project is based on the premise that "fruits, vegetables, and certain livestock activities offer greater opportunity for more intensive use of labor and greater returns per unit of land and labor employed".

B. Projected Outcomes

1. Long Range Outcomes

- a. The project is expected to "directly benefit some 5,000 small farmers and their families" in Region I.
- b. In addition to raising small farm incomes, the project is expected to improve the nutritional status of these families.

2. Intermediate outcomes

- a. "To improve the technical assistance support provided to the farmer through training of extension personnel in diversified crop/livestock technologies".
- b. To establish a special credit fund to be administered by BANDESA.

C. Financial Support

The proposed total cost of the project was \$14.8 million, with AID's contribution consisting of \$2.6 million in Grant Funds and \$5.5 million of loan funds for a total of \$8.1 million. The remaining \$6.7 million is to be contributed by the Government of Guatemala.

IV. PROJECT IMPLEMENTATION

A. Staffing

1. Personnel of the Implementating Agencies

The adequacy of the personnel of the Project's implementing agencies has varied, according to the project area and the institution. Personnel was sufficient at the beginning when the area included 14 municipios (first half of 1983) and these were implemented by the four institutions. DIGESA had local agencies in each municipio but DIGESEPE and BANDESA had a very limited number of agencies. ICTA had even fewer agencies. In mid 1984 the reduction to an area of 12 priority municipios and an additional 25 municipios which will be influenced by these has allowed a much better coverage.

Besides the counterpart personnel from these institutions, loan funds allowed for more personnel to be hired and to furnish them with vehicles, gasoline and per diem. DIGESA was allowed to keep the chiefs, coordinators and soil conservation and mini-riego technicians and add similar positions for vegetables and fruits. However, only four home extensionists were hired and the 4-S Clubs program is still pending execution. This means that an additional technical line was created parallel to the implementing line of subregional-supervisor agencies. The extensionists remained under these two lines. It has been established that they must receive instructions and implement for both agencies. However the way in which they will participate has not been defined yet. DIGESA has reported 145 employees working either

directly or indirectly with the Project; 50% of them have been hired on temporary full time basis ("planilla").

DIGESEPE was able to hire technical chiefs or livestock assistants. Assistants live in the cabeceras departamentales. Technicians take care of all matters from these sedes departamentales. DIGESEPE has reported 9 veterinarians and 50 assistants working for the project.

BANDESA hired four more credit agents and assigned them to coverage from the nearest agencies.

ICTA hired program chiefs and technicians and can hire the agricultural assistants on temporary full time basis ("planilla"). Currently, 18 members who joined ICTA in 1983-84 are working for the project.

Counterpart personnel and the two activities which DIGESA inherited from 520-T-026 performed the planning and the first implementation actions of the Project. Recruitment of personnel with loan funds was slower. Personnel was completed during the first part of 1984. However, there are still some vacancies with counterpart personnel and with loan fund personnel.

During the second half of 1983 the regional directors integrated all the personnel from their institutions as well as counterpart personnel. This was due to two circumstances: (1) externally - the Project area was increased from 14 to 64 municipios; and (2) internally by this gave access of all personnel to per diem and gasoline. The jeeps and the pick-ups were given to

the hired technicians. The motorcycles were given to counterpart and to loan fund personnel before the diffusion centers and the diversification farms were chosen. When this selection was made, motorcycles, funds for gasoline and per diem were reassigned according to the place where they would be used.

2. Technical Assistance (EAT)

The Technical Assistance Team was formed in two phases and is still incomplete according to what was specified in the Project Paper. In late 1983 the Guatemalan Anthropologist/Sociologist and the North American Team Leader (Agricultural Economist) were hired. In March 1984 the Guatemalan Fruit and Livestock specialists were hired. Between May and August the following technicians were hired: North American specialist in Systems and Livestock Production, North American Horticulturist, and the Guatemalan specialist in Agricultural Economics. There are still two vacancies: Horticulturist (Guatemalan) and Fruit Specialist (North American). The Guatemalan expert in Systems has been taking care of the Horticulturist position, and the North American Fruit Specialist has visited continuously the Highlands to work with EAT. The specialists work in teams. The EAT Team Leader is an Agricultural Economist although he has not filled this role. Possibly the Guatemalan Agricultural Economist is his counterpart. The Sociologist/Anthropologist does not need an American counterpart. EAT also has two bilingual secretaries and an accountant/mechanic.

The specialists salaries are paid out of grant funds. The rest of the personnel, operations, materials and equipment are paid with loan funds.

This has caused some negotiations over the budget, budget cuts and some belt tightening in EAT operations.

3. Coordinating Unit (UCPRODA)

UCPRODA's personnel was hired with grant funds. The Coordinator and the Accountant were hired in June 1982. The Coordinator was changed in December 1982. In July 1985 UCPRODA was subdivided and an Administrative Assistant to the Coordinator was hired. The General Coordinator became a Technical Coordinator.

B. Field Work

The present project was preceded in the Altiplano by Project 520-T-026 which included components for miniriego, soil conservation, social payments and technical assistance, among others. Many small farmers were able to construct terraces and protection barriers and install small irrigation systems on their farms. The extension workers assisting these groups and individuals promoted the growing of vegetables, deciduous fruits and new staple varieties. Thus, the diffusion and multiplication of these technologies in the Highlands started under that project. The present Project enabled DIGESA to go on with programs of soil conservation, mini-irrigation, and to include as regular components of the programs the promotion of vegetables and deciduous fruits. From the beginning of 1983 until March 1985, many farmers who were reached through 520-T-026 continued receiving technical and financial assistance through 520-T-034, and new individuals and groups

were added to the lists of beneficiaries.

A critical factor is the flow of information to the small farmer. At the present time, they get some information about supply and demand, and prices, through the rotating market days, extensionists and intermediaries. In the first two channels the information is limited; in the last one it is biased. There is need for a center to collect information on regional, national and international markets, and to distribute this information effectively and on time through extensionists, mass media, especially radio broadcasts and local native languages.

Although DIGESEPE did not participate in Project 520-T-026, it also carried out a series of activities in Region I, contracting farmers, training volunteers in livestock management (feeding, health, productin, marketing). On this basis, DIGESEPE came into Project 520-T-034 as the organization responsible for livestock production. During 1983 it participated in technical events and it started its field work in 1984 by installing the livestock modules. Through these modules, many small farmers got credit, technical assistance, livestock, inputs and facilities.

All of DIGESA's and DIGESEPE's works enjoyed BANDESA's participation from the very beginning.

In 1983-84, ICTA developed the Research subprograms envisioned in the Project Paper, following its organizational methodology. They worked with staples, vegetables, fruits, and also started their livestock subprogram. The

small farmer participation in technological trials and validation, makes it reasonable to expect that, besides the immediate visible results in trial farming fields, there will be a long term and self-sustaining technological effect on the assisted small farms, and real possibilities of diffusion of these technologies to other farms in similar financial, logistical and technical assistance conditions.

Up to 1983-84 the Project was implemented through existing organizational and programmatic channels. Some components appear on certain farms, and other components on other farms, producing a picture of regional diversification. Since the middle of 1984, however, the Project Manager and the Project Coordinator have started to implement some of the concepts in the Project Paper, with a view to moving the project ahead. They promoted the following actions: (1) Interinstitutional Technical Teams were created, and seminars were held, to produce consensus concerning basic concepts of the Project; (2) The Project area was reduced from 65 to 37 municipios for 1985 work; (3) classification and ordering of these municipios in 12 "diversification poles", each one with an "area of influence" which includes 2-3 other municipios; (4) Activities to collect agricultural and socio-economic information on the 37 municipios, now called "diversification districts" (ICTA's document on "Homogeneous Areas", "Sondeos" and "characterizations"); (5) Designing of charts representing farms of the district (called "representative models") by the Technical teams; (6) collecting more agricultural and socio-economic information in the districts ("sondeo" and "characterizations") in order to refine the "farm models" (representatives); (7) carrying out of seminars to develop the Project

integrated work plan 1984-85; (8) selection of small farms, 2-6, at each one of the 12 "poles" done by DIGESA's extensionists in the districts and confirmed by three visiting interdisciplinary and interinstitutional teams. During these visits, agricultural and socioeconomic information about the selected farms was collected.

The selection of these farms (April, 1985) is an important reference point in assessing the Project impact. In strict terms, the technical work for the Project during the first quarter of 1985 consisted of preparing and executing this selection, while the Project components (soil conservation, mini-irrigation, vegetables, deciduous fruits, livestock, technology trials) continued to be carried out separately by each organization, in the traditional way.

With the selection of the farms, technicians of the four participant organizations, and extensionists of two of them, were required to concentrate their joint efforts in these farms, assisting secondarily the remaining (now called "peripheral") farms. DIGESA's extensionists found themselves under two different lines of work pressure: (1) the sub-regional directors - supervisors - local agencies chiefs, who assigned the traditional extension work with groups of farmers a higher priority, without working in the selected farms, and (2) the Project's technicians, who assigned highest priority to the work with the selected farms and project groups. This problem was solved in late May, when it was decided that extensionists had to assist both model farms and non-Project groups. Thus the interinstitutional work of the selected farms has really taken place during the last three months.

C. Training

According to the original plan, AID would provide Q505,000 from loan funds for the training of technicians and professionals involved in the Project. From these funds, ICTA would have Q216,000 that would enable six technicians to obtain masters degrees in Vegetable and Fruit Crops and Livestock. The extension agencies would get Q 72,000 for short term training and the remaining Q 217,000 would be used for in service training by the Dirección de Adiestramiento y Capacitación Agrícola, now called Human Resources Development Unit. This plan was changed through PIL No. 19 and 22, allowing Q 144,000 for ICTA's long term training program; and Q 361,000 for DIGESA, DIGESEPE and BANDESA, short term training programs.

The long term training would take an average of two-years. Thus it was planned for the candidates to participate in getting the project underway before leaving. For this reason, the Masters programs would take place from August '85 to August '87, with four professionals participating in graduate studies in Vegetable and Fruit crops and livestock.

D. Logistical Support

The logistical support to the project started operating during the second semester of 1983 with the recruitment of part of the personnel by the participating institutions. This was almost completed by the end of 1984. Evidence of the effort to complete the technical teams is seen in the extent to which the centralized organizations (DIGESA, DIGESEPE) have included all of

their regional personnel as project executors.

Equipment has been provided at the same pace, beginning the implementation in 1984 with the arrival of vehicles, part of the office equipment and furniture and field work tools.

The remaining materials and inputs came in very slowly in the beginning, but this has now improved. The creation of the Administrative/Controller Coordinating Unit is expected to improve this situation significantly.

The logistical support from loan and grant funds has been adversely affected by the slow procedures. The support from local counterpart funds has been severely hampered by the lack of GOG resources. This has forced the hiring of some extension and technical workers as temporary employees ("planilla"). This placed them at an economic disadvantage relative to the remaining personnel. Furthermore, it has been reported that the extension workers have a per diem (viáticos) of only Q 17.00/month and 2 gallons/week of gasoline for those who have motorcycles. The agricultural guides do not have any per diem, vehicles, or field work tools. The lack of resources to implement the project at the executing levels is evident and it constitutes the weakest point in the program.

E. Financial Support

1. Original Costs

The total budgeted cost of the project was U.S. \$ 14.8 millions. The AID contribution would be US \$ 7.6 millions in grant funds and US \$ 5.5 millions in loan funds, totaling US \$ 8.1 millions, i.e. 55% of the project. GOG contribution was budgeted as \$ 6.7 millions, i.e. the remaining 45%. The estimated project time was to be 60 months, January 1, 1982 to December 31, 1986. Later, the dates were moved to August 28, 1981 - March 31, 1987

The financial plan in the original document is summarized in Table I.

TABLE I
SUMMARY OF THE ORIGINAL FINANCIAL PLAN
(FIGURES in \$000)

| <u>Project Component</u> | <u>AID</u> | | <u>GOG</u> | <u>TOTAL</u> |
|--|--------------|--------------|---------------------|---------------|
| | <u>Grant</u> | <u>Loan</u> | <u>Counter Part</u> | |
| I. Applied Research and adaptation of technical assistance ICTA | 1,197 | 1,202 | 1,551 | 3,950 |
| II. Agricultural Extension and Promoción (DIGESA, DIGESEPE y 4-S Clubs) | 1,012 | 678 | 2,835 | 4,525 |
| III. Credit and Social Cost Expenditures (BANDESA) | -- | 3,044 | 2,177 | 5,221 |
| IV. In-service training (DECA-DIGESA) | -- | 217 | -- | 217 |
| V. Credit Assistance | -- | 124 | 111 | 235 |
| VI. Project Coordination (USPADA) | 231 | -- | -- | 231 |
| VII. Evaluation of Nutritional Impact (INCAP) | 160 | -- | -- | 160 |
| VIII. Inflation and contingencies | -- | 235 | -- | 235 |
| TOTAL | <u>2,600</u> | <u>5,500</u> | <u>6,674</u> | <u>14,774</u> |

2. Current costs

During the Project execution, there have been budget changes in loan and grant funds and in GOG contributions. Some project components have also changed or can be seen in Table 2, which reflect allocation and execution of grant and loan funds according to amendments and information provided by AID to June 30,, 1985.

TABLE 2
NEW FINANCIAL PLAN OF GRANT AND LOAN FUNDS AND EXECUTION
(FIGURES IN US \$)

| <u>GRANT</u> | <u>Obligated</u> | <u>Allocated</u> | <u>Committed</u> | <u>Expended</u> | <u>To be Executed</u> |
|----------------------------------|----------------------|----------------------|----------------------|---------------------|---------------------------|
| Small Farmer Management Survey | 85,000 | 40,578 | 40,578 | 34,937 | 50,063 |
| Nutritional Evaluation | 160,000 | 80,000 | 80,000 | 35,000 | 125,000 |
| Project Coordination | 254,000 | 140,000 | 139,700 | 132,102 | 121,898 |
| 4-S Clubs Rotating Fund | 82,000 | 42,000 | 42,000 | — | 82,000 |
| Technical Assistance (External) | 2,174,000 | 2,098,468 | 1,056,900 | 367,569 | 1,806,431 |
| Technical Assistance (Guatemala) | 520,000 | 334,168 | 240,368 | 145,701 | 374,299 |
| Technical Assistance Support | 373,000 | 110,840 | 66,340 | 47,066 | 325,934 |
| Contingencies | 48,000 | — | — | — | 48,000 |
| Sub totals | <u>3,696,000</u> | <u>2,846,054</u> | <u>1,675,886</u> | <u>762,375</u> | <u>2,933,625</u> |
| <u>LOAN</u> | <u>Obligated</u> | <u>Allocated</u> | <u>Committed</u> | <u>Expended</u> | <u>To be executed</u> |
| Training | 505,000 | 505,000 | 505,000 | 54,318 | 450,682 |
| Vehicles and Equipment | 726,000 | 605,390 | 463,534 | 446,463 | 279,537 |
| Materials and Accesories | 888,596 | 281,159 | 226,636 | 209,116 | 679,480 |
| Construction and Supervision | 227,000 | 266,108 | 149,020 | 45,000 | 232,000 |
| Credit Studies | 20,000 | 20,000 | 20,000 | 20,000 | — |
| Credit Funds | 3,000,000 | 1,110,263 | 1,110,263 | 845,400 | 2,154,600 |
| Contingencies | 62,000 | — | — | — | 62,000 |
| Agricultural Survey | 21,404 | 21,404 | 21,404 | — | 21,404 |
| Subtotals | <u>5,500,000</u> | <u>2,809,324</u> | <u>2,495,857</u> | <u>1,620,297</u> | <u>3,879,703</u> |
| TOTALS I+II | <u>9,196,000</u> | <u>5,655,378</u> | <u>4,171,743</u> | <u>2,382,672</u> | <u>6,813,328</u> |

1/ The Grant was increased by US\$ 1,096,000 according to Amendment Nr. 4 dated March 20, 1985.

Concerning the GOG counterpart funds, following comments are made:

- a. The codes and classifications used by the executing organizations do not coincide with the system used by AID.
- b. The operating budgets of participant organizations have suffered curtailments that reflect variations in the GOG counterpart funds for the Project.
- c. Changes and amendments in grant and loan components have not corresponding counterpart budget line adjustments.

Nevertheless, a summary of overall counterpart funds reported by executing organizations at June 30, 1985, is the following:

| | | |
|----------|----------|-------------------|
| BANDESA | Q | 970.000.00 |
| DIGESA | Q | 242,295.82 |
| DIGESEPE | Q | 116,000.78 |
| ICTA | <u>Q</u> | <u>504,070.55</u> |
| TOTAL | Q | 1,832,367.00 |

3. Problems:

The following problems were reported by officials of the executing organizations during interviews with the Evaluation Team concerning financial aspects of the project.

- a. Reductions in GOG counterpart funds and the increases in operating costs has prevented the project from initiating building of DIGESEPE's laboratory and DIGESA's Training Centers. There has also been a shrinkage in project support through a curtailment of funds for fuel, per diem and other costs.
- b. The increasing costs this year make it impossible to get the envisioned acquisitions at the estimated prices. This applies to vehicles, equipment, materials, livestock, buildings, mini-irrigation systems, soil conservation works and other similar activities.
- c. It is necessary to review and update the production costs used by BANDESA to give credit since these have not kept pace with the rising costs of agricultural inputs.
- d. The processing of reimbursement vouchers has been for the executing organization a slow procedure that needs to be accelerated. It is also necessary that those Ministry of Finances officers responsible for the use of rotating funds, cooperate with the executing organizations in a better performance of their role within the project.
- e. The grant and loan budgets do not include funds to cover the added value tax (IVA). A decision is needed on the part of GOG to liberate such obligations since the executing organizations do not have funds to pay the tax. Otherwise, it will be impossible to liquidate completely the rotating fund, which at a mid-term would be a difficult problem for the executing organizations' operations.

V. EVALUATION OF PROJECT IMPLEMENTATION

A. Project Objectives

The Project Paper states the goal of the project as, "(To) improve the well-being of rural Guatemalans living in the Northwestern Highlands". Further, it states the sub-goal as "(To) improve small farm management and increase the return to factors of production of the small farmer enterprise". Finally, it lists the project purpose as "(To) strengthen public agricultural sector capacity to stimulate small farm diversification from basic grains to higher value diversified crops of greater labor intensity". (p.9)

In a mid-term evaluation such as this one, the objective is not so much to evaluate the accomplishment of the project goal, per se, but rather to evaluate the preparations made toward achieving project progress. While some project progress has been made in the sense of improving the financial and nutritional status of the families living on the model farms, this has been modest since there are only 44 farms so designated and these have been operating for less than six months. However, the fact that the model farms have been selected and are beginning to implement the diversification program is significant. Given the key role, these farms will play in the project strategy, progress on this front represents significant preparation for the wider spread diffusion phase of the project. Likewise, the considerable amount of investment made in the research programs of ICTA should pay substantial dividends during the rest of the project. In sum, the project seems to be poised, ready for take off in an exponential fashion.

A more detailed consideration of preparations made toward achieving project progress requires focusing on the project components. These are 1) Small Farmer Applied Research and Technology Adaptation, 2) Technology Transfer and Technical Assistance Program, and 3) Small Farmer Diversification Credit. Each deserves elaboration and suggestions for possible improvement.

1. The Small Farmer Applied Research and Technology Adaptation has not moved forward as rapidly as originally envisioned. Although this is partly explained by the political situation in the country during much of the life of the project, other factors have been involved also. The objective now is to suggest means of increasing the pace of project progress. One aspect of this could involve ICTA using the model farms to perform the technology creation and validation phases of its technology transfer system. This necessarily means refocusing much of the research, especially for fruit and vegetable production, from the research station to the model farms. Given the initial diversification taking place on these farms, they can serve as a "gold mine" of information for applied researchers.

Another aspect of applied research involves moving rapidly to the simulation of the model farms as envisioned in the project paper. The tremendous number of different possible combinations of farm inputs and outputs makes such an analysis necessary. To do so, a network of microcomputers should be established—one in each of the six departments and one in the project coordination unit. While primarily used for farm planning purposes, they should also be used for farm record keeping purposes, data

reporting purposes, and storing price data by date, place, and volume of sale (See discussion of data bank in Project Paper, page 20). At minimum, for each model farm information should be readily retrievable concerning a) the most profitable plan acceptable to the farmer and b) the progress made toward implementing it.

2. Likewise, progress could be made more rapidly in the Technology Transfer and Technical Assistance Program . A cornerstone of this expediting program should be a massive training program for research personnel, extension specialists, extension agents and farmer guías. While partly conducted by the technical assistance team, the bulk of this training responsibility should rest with the most highly trained host institution personnel. Regardless of the instructional staff, each training program should include a thorough evaluation program to be conducted by the project's technical unit. This will enable participants to provide feedback concerning the relevance of the training and the adequacy of the instruction.

An evaluation program of a more general nature is needed also to continuously monitor constraints to project progress. Again, this should be the responsibility of the technical unit of project headquarters. For example, immediate attention should be devoted to obstacles being faced by the guías, e.g., adequacy of their compensation, transportation and training. Although they may be the least educated of the information diffusion team, they may be the most critical in getting changes actually made in farmers' fields. They deserve immediate attention.

The Project Paper recognizes the importance of potential nutrition impacts of the project by providing for special attention to nutrition in the baseline survey. Further, it specifies that one of the indirect benefits of the project will be "improvements in the nutritional status of the rural poor". However, the document is relatively silent on how those improvements are to be realized. In some instances very impressive work is being done by home demonstration agents. They are teaching farm wives how to prepare the new vegetables being produced on their farms. Clearly, the most direct effect of the project on nutrition will be by changing the diets of the farm families themselves. Not only will the consumption of the vegetables and fruits themselves assist in this regard, but also the use of ingredients such as eggs and fortified flour will become a significant impact. The consumption of the latter items will become feasible enabling (1) the eggs produced on the farm to be used by the family rather than sold to obtain cash income, and (2) the fortified flour to be purchased with the newly available cash income.

But these diet changes will not happen automatically. A region wide program by the home demonstration agents is needed as an initial part of this project. Resources should be provided to make this happen. In reality, the program should be formed on the Model Farm and Home concept rather than just on Model Farms.

3. The progress of the Small Farm Diversification Credit activity is tied directly to the progress in the selection of the participating farms. More importantly, most of the procedures for implementing the program are in place. Effort needs to be made to make them function in a consistent manner.

For example, some farmers interviewed reported inability to get credit due to past unpaid loans they had received from BANDESA, while the area supervisor stated that that should be no obstacle to getting credit. Others said credit was more difficult to get under this project than under other BANDESA programs. The requirement for the extension agent to also approve the use of credit on the model farms inserted another level of bureaucracy into the lending process. Delegation of authority is needed to avoid these problems. Regardless, noteworthy is the progress made in the lending program as indicated in Table 3.

B. Staffing

1. Personnel of the implementating agencies

DIGESA has the most numerous and heterogenous in terms of specialties and technical level within the Project. The executing level is formed by the agricultural promoters of the 4-S clubs, the home improvement extensionists and the guías agrícolas. The agricultural and production emphasis of the Project, however, has diminished the participation and contribution the Project originally required from the promoters to improve homemaking. Apparently personnel is numerically more adequate here than in the other institutions, especially if the Project's focus will be in the model farms and in the pole diversification districts. Extension of the Project's coverage to the peripheric farms and to the poles of influence of the municipios will produce a shortage of personnel. The efficiency of the personnel's work within the project has been more than

acceptable. The new demands of the model farms require, however, training and logistical support.

DIGESEPE covers the districts and farms with itinerant technicians and with local livestock auxiliaries. This local personnel will require training and technical assistance in situ for their participation in model and peripheric farms and also to take care of livestock modules already installed, as well as the model farms selected or to be selected.

BANDESA could only hire four more credit agents to take care of the service required by the Project. Personnel is insufficient for the work volume and in view of its importance to projects to be financed, it must be increased and logistically supported and must also receive specific training.

ICTA has personnel to test technology for the implementation of the project who can take care of investigation as well as technical assistance in the selected farms within their different components. ICTA has also pointed out the need to hire and implement technological transfer teams in adequate proportions to the volume of extension activity which DIGESA and DIGESEPE have underway.

In general, the following imbalances are noted in personnel: (1) the disproportion of male technicians and extensionists; (2) the disproportion in technicians and agricultural extensionist compared to other specialties of the Project. The number of female professionals and

extensionists must be increased, specially those working in livestock and socioeconomic specialties. Also, the interdisciplinary work groups must be better balanced. DIGESA technicians have suggested the possible relocation of certain Project technical and extension personnel.

2. Technical Assistance

Technical assistance personnel is still incomplete, not only with respect to the positions described in the Project Paper but also other positions that it will be necessary to fill throughout the Project's implementation. The most urgent position that must be filled is commercialization, but specialists for mini-irrigation, soil conservation, nutrition, environmental conservation and communications are also needed.

The professional qualities of the Technical Assistance Team is varied, but generally speaking, it is adequate for the project's needs. The team has worked within the original Project plan that was underway before the Technical Assistance Team was formed. The team has also participated in coordination and training activities, technical data gathering, and the formation of livestock modules, model and peripheric farms.

3. Coordinating Unit (UCPRODA)

UCPRODA's personnel cover a large variety of activities, both in their Guatemala and Quezaltenango offices. With the internal division of administrative and technical responsibilities it is expected that their

communication and coordination activities will improve.

C. Field work

The implementation aspects (personnel and logistic) and organization of field work have been discussed previously; the results and the impact are discussed later. In this section only the implementation methods are considered. The Project's work area has been common to the four participating institutions from the beginning. The specific work sites (farms) of the different Project components and have had only a few things in common. The model and/or peripheric farms that have all these components are a minority and therefore their selection as learning farms on complex livestock systems has proven important. When a second round of farms takes place, generated and/or approved technology will be applied with much more confidence. However, other farms in area of influence are already incorporating some technology through ordinary extension work from DIGESA and DIGESEPE.

Applied technology to these farms comes from different sources: DIGESA's technicians and agricultural extensionists and DIGESEPE's livestock extensionists, ICTA's and EAT's technician, and some private projects and organizations. Work in these components has been intense. A project component that receives little support is nutrition. This item is the responsibility of DIGESA's promoters of Home improvement. This work is necessary because it (1) constitutes one of the aspects of the evaluation impact of the Project and (2) the intensive female care of livestock work - one of the Project goals - specifically threateans children care and their

nutritional and health condition.

Another field work aspect related to the previous one, is the need to have in the implementing agencies technical assistance from female professionals in agronomy, animal production, commercialization and extensionists because the wife of the small farmers doesn't limit herself to execute her husband's chores but also makes decisions on production and agricultural commercialization, animal care and family consumption. This happens in indian families with different degrees of ladinization.

The guía agrícola's role has a special significance within the Project. They are natives of the area, bicultural and bilingual. They promote the bridge between two world that come into contact in the small farm. However, it is necessary to educate the extensionists and specially the technicians so that they allow these guías to execute their catalyst role in the small farms and communities. Generally, they only follow instructions, and lack logistical support.

Working in close contact with the above. It is also necessary that special work with technicians and extensionists be included in all training activities enabling them to interact with the small farmers better. They must perceive themselves as catalysers, as educators, and allow the small farmer to be the leader of its own development at all times. They must not think nor execute actions for him but with him, allowing him to acquire longlasting work habits. The worry to obtain immediate visible results is impeding the same.

Another aspect that needs more definition is the role of the Technical Assistance Team in field work. Undoubtedly, it must be included in the planning and programming of the farm teams and coordinating district committee sites proposed in another part of this document.

D. Training

This phase of the project has suffered several changes and delays in its implementation, causing frustration on both sides and an inappropriate utilization of available resources.

Frustrations have occurred mainly in ICTA. Originally, there were expectations to have the opportunity of six masters degrees. Now there are only four, with the risk of losing these, since there are very few days left for the initiation of the course in New Mexico, and the necessary arrangements for the trip haven't been finalized yet in Guatemala.

With reference to short term training, little or nothing has been done with the lower levels of implementation, which is the more confused segment as a consequence of the deficient communication system. There were two seminars which had massive participation and proved to be very valuable in an effort to overcome the communication barriers. Perhaps the only criticism applicable is that the Home Educators, 4-S Promoters, and Agricultural Guides were not involved, even though they also have to play an important role within the Project. No other activity is reported towards the technological strengthening of the promoters and extensionists directly related to the

farmers and their families. The workshops implemented have been directed towards middle and upper levels only. It is important to add that independently from the short term training plan referred to above, there have been several training activities undertaken by the technical assistance teams on their own initiative.

E. Logistical Support

The logistic support to the project has been one of the most severe restrictions in its implementation, given that neither the personnel, nor the vehicles, equipment, supplies, etc., have arrived in a timely manner, throwing many activities of the Project out of phase. It is difficult to establish precisely when the implementation was initiated, since even now it is partial. Since EAT is still understaffed, the agencies have had to direct their personnel to other activities and even resort to contracting people on a temporary basis in an effort to get the necessary working teams together. The same thing has happened with the vehicles and other equipment. The vehicles were not delivered until June/1984 and institutions such as ICTA say that they have had to complement their working equipment by transferring heavily worn out vehicles from other regions with a high maintenance cost.

To this must be added the rather slow procedures for procurement of supplies, possibly due to lack of understanding and/or ignorance of the ongoing systems. In some cases it is noted that months have gone by without obtaining reimbursement for expenses made from the rotating fund, forcing institutions to nearly stopping the procurement process. This caused the

creation of the Financial and Administrative Coordination Unit, and this is expected to expedite the process. An example of this deficient operation is the problem that arose in the construction of ICTA's laboratory. Construction work was about 70% complete, but the contractor is now accusing ICTA of non-compliance due to lack of reimbursements from AID to pay the expenses incurred to date. ICTA was also authorized to procure directly minor equipment in the amount of Q10,977.61. It was impossible to obtain part of it due to the fact that the suppliers could not maintain the bid prices for the 3 to 4 months required to get authorization of purchase. Phenomena similar to these will continue to happen, affecting important activities such as the construction of training centers for DIGESA, which now can hardly be expected to terminate according to the original budgeted cost.

There are other restrictions on the financial side which make logistic support difficult, such procurement of fuel. There are some cases in which one or two gallons of fuel per week are assigned to the field technician's motorcycles (extensionists and promoters). The same thing happens with per diem, which in the case of extensionists does not cover more than mobilization in some instances. This is disappointing for the field workers and reflects directly on his performance. All the above suggests the need for an urgent implementation of manual orders on procedures, with adequate knowledge and understanding by those involved in the procurement process and contracting of goods and services. It is important as well to make a clear definition of responsibilities, providing a fixed period of time to comply with each phase of the process.

In so far as the operating expenses are concerned, those activities requiring a periodic purchase of materials or supplies should calculate the time for delivery and request them with anticipation, before the reserves are exhausted (fertilizers, seeds, pesticides, fuel, etc.). It would be very helpful if higher rotating funds with partial liquidations could be authorized to insure a continuing cash flow.

With reference to the construction of training centers, it is important to adjust budgets using variable indicators of prices of construction materials to analyze quickly the feasibility of constructing the four programmed centers, or else limit effort's to two or three of them, taking into account that none of them have been initiated and it will take still some time before that takes place.

F. Financial Support

1. Implementation achieved by 30/6/85

Of the US \$ 3,696,000 in Grant Funds only US \$ 762,375, or nearly a 20.64% has been obligated. Comparing the budgeted total of US \$ 2,846,054 and the amount committed of US \$ 1,675,886, only 26.79% and 45.49% respectively are involved.

With reference to the loan, US\$1.62 million have been used, representing 29.46% of the obligated total of US \$ 5.5 million, 57.68% of the assigned total of US\$2.8 million, and 62.92% for the amount committed for US\$ 2.5

million.

As can be noted, resources coming from the loan have been utilized more than grant funds; nevertheless, the sums used are quite low in view of the time for execution of the project.

In general terms, from a total of US\$ 9,196,000 between loan and grant funds reported and obligated for the project, only US\$2,383,672 or the equivalent to 25.91% of it had been utilized as of 30.6.85.

The above indicates that the financial implementation of the project has not proceeded according to the original plan and that it will require an extension of the original planned term to finalize programmed activities.

Nevertheless, it is recommended that the utilization of available resources be expedited taking the following steps:

a. Preparation of implementation plans for each activity, establishing actual goals according to availability and optimum coverage of resources.

b. Expedite the process of procurement of vehicles and equipment under the project. Acquisitions will have to be adjusted to availability of resources and market prices, and where necessary, corresponding budget adjustments will have to be made.

c. Update the construction budgets and obtain the necessary

complementary resources to carry out the work.

d. Comply with the previous requirements to utilize the grant and loan resources.

e. Determine and meet necessary requirements so that authorized amounts and corresponding commitments can be obtained from the obligated amounts, and committed funds can be utilized expeditiously.

f. Maintain a two-way information system between the Coordinating Unit and the implementing institutions with respect to budget reserves, their implementation and availability, classification per line items and source of funds (Loan, Grant and Counterpart). This two-way information system should be carried out monthly or quarterly.

g. Finally, it is recommended that a revision and update of the financial needs of the project be made, in light of the new events during the implementation phase and recent price rises.

2. Credit Activity

Table 3 provides chart figures corresponding to the credit activity of BANDESA from the beginning of the project up to June 30, 1985.

Up to that date, 856 loans had been granted for a total of US \$ 1,566,058, which represents 30.12% of the US \$ 3 million loan provided by AID. From the

AID LOAN 520-T-034 BANDESA'S CREDIT ACTIVITY

(FIGURES IN US \$000)

| Destination | AID Loan | Government Counterpart | Total Allotment | Granted Credits Initiation to 30/6/85 | | Execution % o/Allotment | AID Disbursements |
|------------------|------------------|------------------------|------------------|---------------------------------------|------------|-------------------------|-------------------|
| | | | | Amount | Number | | |
| Vegetables | 1,038,600 | 761,400 | 1,800,000 | 224,838 | 281 | 12.49 | -- |
| Fruits | 453,000 | 332,100 | 785,100 | 345,390 | 103 | 43.99 | -- |
| Livestock | 539,700 | 395,650 | 935,350 | 148,270 | 63 | 15.85 | -- |
| Small-Irrigation | 588,382 | 431,343 | 1,019,725 | 348,389 | 86 | 34.16 | -- |
| Social Payments | 380,318 | 279,507 | 659,825 | 489,171 | 223 | 74.14 | -- |
| TOTAL | 3,000,000 | 2,200,000 | 5,200,000 | 1,566,058 | 856 | 30.12 | 845,400 |

38

total of granted loans, AID had disbursed US \$ 845,400, equivalent to 76.14% of the US \$ 1,110,263 assigned and committed by the Mission.

Activities receiving major financial coverage with respect to their assignments were social payments with 74.14%, fruits with 43.99% and mini-irrigation with 34.16%. Minor activities are reflected in horticulture with 12.49% and livestock with 15.85%. With reference to the number of payments granted, the highest number is reported on social payments, with 323 cases taken care of, and horticulture with 281. The smallest activity was livestock with 63 loans, mini-irrigation work with 86, and fruits with 103.

G. Organizational and Institutional Support

1. Project Organization:

The project organization is represented primarily by a matrix system in which the human resources responsible for the implementation belong to the permanent organization of the Agricultural Public Sector but, they compose the inter-Institutional technical teams.

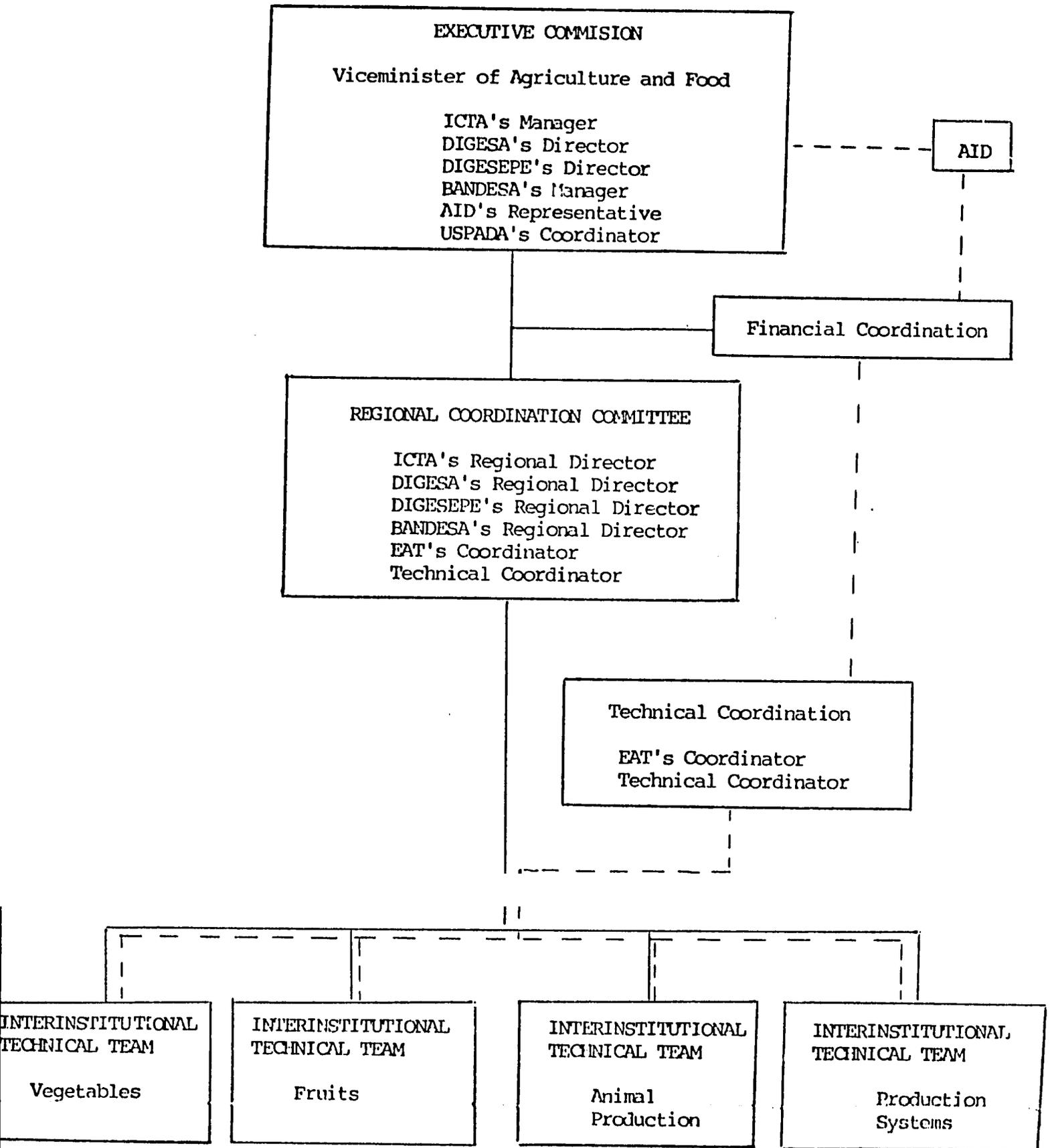
According to the available information, the original project organization was modified to adapt to changes in the implementation process.

Through a Ministerial Order of April 23, 1985, the project's Reglamento was approved. This document redesigns the interinstitutional coordination structure to improve the operational capacity of the project, which at the

ORGANIZATIONAL CHART

SMALL FARMER DIVERSIFICATION PROJECT

AID 520-T-034 AND 520-0255



present time is being implemented under the contractual regulations set forth in the AID Loan and Grant Agreements. This Reglamento lists the participating institutions as: Institute for Agriculture Science and Technology -ICTA-, General Directorate for Agricultural Services - DIGESA-, General Directorate of Livestock Services -DIGESEPE -, National Agricultural Development Bank - BANDESA-, Agricultural, Livestock and Food Sector Planning Unit - USPADA-, and the Agency for International Development - AID.

The organization of the interinstitutional coordination for the project implementation is as follows:

- a. Executive Commission of the Project
- b. Regional Coordinating Committee (CORECO)
- c. Financial Coordinating Unit
- d. Technical Coordination of the Project
- e. Implementing Units
- f. Technical Assistance Team

The Reglamento defines the responsibilities of each of the above mentioned groups. Table 4 shows the organizational relations.

2. Problems:

One of the main obstacles that the project had to face in the beginning was that the participating technicians and professionals were subject to rules and regulations from their respective institutions, making communication and

coordination difficult. On the other hand, responsibilities for goals to be achieved by each executor were not clearly defined.

As executing organizations, ICTA and BANDESA operate as decentralized entities, with their own Organic Laws and Regulations, while DIGESA and DIGESEPE, as governmental agencies, are ruled by general governmental regulations. This explains some of the differences in procedures of implementation, which somehow will have to be standardized by the Coordinating Units.

CORECO and the implementing units should consider reviewing and analyzing the basic project document, and distributing it thereafter to all of the implementing levels. The updated document should clearly define levels of responsibility and authority, as well as objectives and new proposed goals.

The incorporation of interinstitutional technical teams, the technical coordination and an active participation of the Technical Assistance Team, promise to solve those problems experienced in the beginning of the project.

Nevertheless, the Evaluation Team considers it advisable to use in the project an integrated planning/management-by-objectives system which would make it possible to evaluate the execution of all programmed activities against the specific goals established by the interinstitutional technical teams. This could be a quarterly evaluation, carried out by CORECO to implement necessary corrective actions and modifications.

Some officials of the executing organizations feel that a closer relationship between the Technical Assistance Team members and the organizations is needed to improve the advisory services. It was suggested that some EAT members should be incorporated into the implementing organization for a more coordinated performance of their role.

Since this incorporation is not addressed in the new Reglamento of MAGA, the Team suggests that the technical coordination unit promote relationship.

The following elements need to be defined and clarified in the Reglamento and organizational chart.

1. The lines of authority and liaison between the technical and the financial coordinating units.
2. Composition of the project's Technical Coordination.

Regarding the last issue, attention is called to the following: Article 13 of the Reglamento states that the technical coordinators of the project are technicians appointed by GOG and AID and that they are represented in the Regional Coordinating Committee by the Coordinator of the International Advisors and Article 15 points to the Technical Assistance Team Coordinator as the one responsible for the Team. It is necessary to make clear whether the Reglamento refers in both cases to the same advisor or whether they are different. In the first case, the Technical Assistance Team Coordinator would be considered as a part of the Technical Coordination; in the second base, it

would be necessary to define who would be the Coordinator for the International Advisors.

Finally, it is recommended that appropriate and precise communication on the goals envisioned, be channelled from the top levels in the Organizational Chart to the implementing and Technical Assistance Units, creating a esprit-de-corps which encourages a coordinated and joint participation in attaining the project objectives. Interinstitutional meetings and training and orientation programs could be of valuable help in achieving this.

H. Institutional Coordination

Institutional Coordination is the most difficult and troublesome aspect of the project. The four participating institutions have traditional roles that at best can be described as competitive. Further, there are varying degrees of autonomy represented among them. Hence, the difficulties experienced in attempts to obtain cooperation and coordination in the implementation of this project should not be surprising. The Project Paper is extremely naive at this point and tremendously underestimates this problem.

Given that this is one of the biggest obstacle to the successful completion of the project, it would be advisable to invest additional project resources in the solution of the problem. The promise of these resources being effectively utilized is assessed to be good due to the apparent desire of the institutional administrators, especially at the regional level, to make the project work successfully.

A first step in dealing with the coordination problem could be to have all participants gain a common understanding of the expected outcome, with emphasis on the mutual benefits to be derived to the participating agencies for cooperating and coordinating their efforts ^{1/}. To obtain that common set of expectation all members of CORECO, including those with voice but not vote should visit selected Latin American and U.S. sites to gain insight into 1) alternative methods of coordination and cooperation among institutions and 2) the benefits to each institution of assuming such a stance rather than a competitive one. Within the team there should be a division of labor with respect to gaining detailed information at each of the sites visited about the functions represented; e.g. finance, research, extension, etc. However, each institutional representative should be given an assignment to glean detailed information about a function other than that performed by his institution. That is, for example, the ICTA representative should be responsible for the extension function, the BANDESA representative should be responsible for the research function, etc. Further, prior to their return to Guatemala, each should prepare a paper in which the following are presented: 1) alternative ways of performing the function in question in a coordinated manner with other institutions, 2) the advantages and disadvantages of each alternative, and 3) the recommended way the function such be performed in a coordinated manner in this project. These papers should be thoroughly discussed by the team prior to its return to Guatemala.

^{1/} The Project Paper shows a definite U.S. bias toward assuming the benefits of institutional cooperation to be obvious. However, the U.S. experience is not understood by most project participants.

Upon return of the team, a series of seminars should be scheduled within each of the represented agencies. The above mentioned papers and resultant institutional positions should constitute the substantive basis for the seminars. Attendance should encompass all levels of the institutions conducting it and all members of CORECO should attend all of the seminars.

While this activity will clearly be resource consuming, such resources use is justified on the basis of the magnitude of the problem involved. Relatively little will be accomplished by the project at the farm level if a clear signal is not sent throughout each of the participating institutions that cooperation and coordination among agencies is to be the "rule rather than the exception". Those signals have not yet been sent. There is considerable evidence that within institutions there is, at best, confusion and uncertainty about the appropriate stance to take -- to compete or to cooperate.

Another step in providing an incentive for interagency coordination could be to provide an association between institutional performance and institutional budget allocation. Institutions need to be rewarded not only for effective performance, but also for doing it in a coordinated manner. To assure that happening, a peer review process should be initiated. When put in synchronization with the budget cycle, this process will provide clearly understood incentives for coordinated project performance.

The question remains as to how such a peer evaluation process should be implemented. One alternative is to have standing external peer evaluation

teams, one for each institution involved. Such a two or three person team should be comprised of eminent administrators of similar institutions from both Latin America and the U.S. No more than one week should be spent annually by each of the teams evaluating the past year's performance of the institution, especially its utility to this project. Usually, the evaluation will be of the regional program of the institution. However, in those cases in which a part of a national program outside of the region is relevant to the project, that portion of the national program should be evaluated also. The end product of the evaluation should be a recommendation to increase, decrease or leave unchanged the institution's budget allocation from the project for the next year relative to the past year. Project administrators should consider this carefully in deciding what operating funds to allocate to the institution, in addition to those to be allocated for institutional strengthening purposes.

Another step in coordinating the elements of the project should be the establishment of a unifying "doctrine" for it. The doctrine might be thought of as being analogous to the genetic coding of plants and animals. As such, it represents the innermost drive or mission that directs the program, i.e., its basic reason for being. In order to be not only an expression of the institution's image to the external world but also a motivator for personnel in the participating institutions, the doctrine should be stated in the form of a motto. Two illustrations of mottos used by agricultural institutions in other situations are suggestive. The motto of the Extension Service of the U.S. for years was, "To grow two blades of grass where one grew before". The research motto of the College of Agriculture, University of Missouri is,

"Finding a better way". Of course, these are merely illustrations. The motto and supporting statement of doctrine needs to be developed by the project leaders because it should capture the utmost essence of the project. Its formulation will facilitate not only the communication of "what the project is all about", but also will facilitate the coordination of the programs of its component institutions. It should be supplemented by a brief project description which would be distributed to all project personnel.

The final step in increasing the project's coordination should take the form of organizing a Model Farmers Association. Such a "grass roots" organization will enable participating farmers to communicate the importance of a unified project. In addition, the association should become a support group for the project over time. Further, from its members the four institutions should jointly select an Outstanding Model Farm Family on an annual basis. Not only will this attract national attention to the project but also will help establish role models of successful farm families, especially for small farmers.

Some other considerations are needed concerning the staff coordination. The Coordination Unit (UCPRODA), the Technical Assistance Team (EAT), and the interinstitutional Technical Teams are the staff elements considered here.

According to the recent Reglamento, (MAGA Acuerdo Ministerial, April 23, 1985), UCPRODA's Administrative Subdivision coordinates interaction among AID, Despacho (MAGA), CORECO and executing institutions. The technical subunit, together with the Technical Assistance Team (EAT) leader, constitute the

project technical coordination. The Technical Assistance is thus linked with CORECO and UCPRODA through its leader; in addition, each one of its members participate with the interinstitutional technical team at a regional level. But the execution of interinstitutional and multilevel activities such as the sondeo (Dec. 84) and the caracterización (March '85) have shown a strong need to make communication among the staff elements and between these and the line elements is more effective. It is necessary to increase frequency, broadness and richness of communication among CORECO, EAT, UCPRODA and institutional line elements of execution. Specifically, it would be helpful to have present at CORECO's meetings representatives of the interinstitutional Technical Teams the Technical Assistance Sub-Team of systems whenever technical decisions are to be made.

The coordination problems are even more acute and critical below these levels. At each departamento, two municipios have been chosen as diversification districts (DD) for 1985. The cabeceras municipales are the seat of the local institutional agencies executing the Project and many of the local small farms chosen as "farms for diversification" are located at considerable distances from these seats. It is especially here, at the district and farm level, where the problems of interinstitutional coordination are springing up. Hence, district committees of coordination and interinstitutional farm team are needed for joint planning and execution. At least the last one would be in need of getting together twice a week.

Then, from the farm teams and district committees up to the top decision-makers, a common frame of reference is needed. Especially at the

farm team and district committees levels, every one needs to know what to do and how, when and where to do it. Diagrams like CPM or PERT will be helpful to show a division of work and critical timing paths, especially since the project implementers have additional responsibilities within their ordinary work plans and with other projects.

A dynamic flow of adequate information is also needed to obtain coordination between the different levels of interinstitutional linkages and to orient the overall planning and execution. An information center, operated by the coordination unit, assisted by the systems sub-team of the Technical Assistance group, and a system of computers would fulfill such a function. The center should be responsible for publishing and distributing to all participants a monthly project newsletter, among other things.

I. Use of Logical Framework

The project Logical Framework is known only at AID, UCPRODA, and by some managers and central directors of the participating institutions. Moreover, the log-frame is not consistently used by the decision-makers who know it. In a seminar on Administration (INCAE), the technicians became acquainted with the long-frame method, but no feed-back was formulated for the Project Paper Log-Frame. Several attempts have been made to acquaint administrators and technicians with the use of the Log-Frame in developing plans of work, but it has been of minimum utility in this respect.

The Log Frame as originally constructed contains some critical assumptions that have not been realized on the one hand. On the other hand it is naive in failing to make other assumptions explicit. Each deserves elaboration.

Unfortunately, the assumption that the "marketing infrastructure provided under loan T-030 is in place" has not held. Hence, the lack of adequate consideration of marketing is now probably the weakest element in the project. The team saw ample evidence in field after field on the model farms that vegetables and fruits can be produced. When the diffusion effect of the model farms takes place, however, the augmented production could have a price depression effect that is very severe. The perishable nature of the products combined with their probable inelastic demand in the domestic market could result in participating farmers having a lower farm income as a result of the project rather than a higher one.

An implicit assumption made in the Log Frame was that concerning the availability of and/or the length of gestation required to produce new technology. Within a span of the 5 year life of the project the assumption was made that new technology would be implemented on 5,000 farms. A project of that magnitude on that time schedule must assume that the technology involved must be readily available. Yet ICTA had relatively few research results in the areas of horticultural crops and livestock available at the outset of the project. To expect to generate those results and implement the technology on the 5,000 farms within the 5 year life of the project was quite unrealistic. Clearly, neither the time frame nor the resources provided were realistic with respect to technology generation and application in the Log Frame.

Several corrective actions are required. First, the Log Frame needs to be revised. This should be done by experts knowledgeable in agricultural research, information diffusion and production agriculture. Second, priorities should be established taking into account the present status of the project and the need for ICTA to join in the evaluation of technologies already implemented on the first generation of "model farms". Finally, the entire project should be extended at least two years.

VI. OVERALL OBSERVATIONS AND SUMMARY

A. Project Design

The basic objectives of the project strike at the very heart of Guatemala's problems in economics and social development. The 'altiplano' is densely populated, land resources are fully occupied, and rural families are being forced onto land that is very marginal in productivity. Any relief that can be brought to these families will contribute substantially to the country's development process. Thus, it is hard to imagine a project with a more rewarding target group.

The project design is well conceived in several respects. It chose a well defined target area for implementation. It sought to utilize the existing institutional resources rather than trying to build new competing organizations. It included all of the guatemalan organizations necessary to ensure the success of a farming systems approach. And it concentrated on increasing the productivity of the small farm enterprise in a manner that could improve the overall well being of the farm families.

The project design was based on several premises, however, that are as yet not completely validated. It was implicitly assumed that ICTA either had in hand, or could attain in a relatively short period of time, technological information necessary to initiate "diversified farm" programs involving vegetables, deciduous fruit, and livestock. This assumption not only proved to be tenuous, but it placed ICTA in the awkward position of having to move

out of a position of leadership in the project. The withdrawal of ICTA from a leadership role forced DIGESA and DIGESEPE to accumulate with the help of the Technical Assistance Team, the technology to be attempted on the "model farms". These groups are to be commended for the quality of programs they have put in the field in view of small amount of technological support they received from ICTA. Most of the farm programs visited by the team seemed to have incorporated technological elements that could succeed in the near term. This is attested to by the enthusiasm of the participating farmers and their neighbors.

Implicit in the project design is the assumption that there is considerable elasticity in the demand for the new vegetable and fruit crops being introduced to diversify the farmer's production. This assumption is already being challenged in a few areas where the "model farms" are most successful. The design contemplated the services of a parallel project on marketing in addition to the inclusion of a marketing component within this project. Neither of these elements has been operative to date. There is a real danger that success in the agronomic aspects of the project can only aggravate the economic plight of the small farmers if the marketing component is not resolved at an early date.

There is also in the design the implicit assumption that management of the project can successfully be vested in a coordinating committee composed of representatives of competing organizations. This project exhibits all the symptoms of a poorly coordinated program. The lack of centralized responsibility and leadership at the regional level has virtually eliminated

the availability of the necessary survey information, it has alienated the services of the research group and it has greatly confused the extension workers in the field who do not know who is the project's boss. It is not realistic to expect that each organization will take its proper role by reading the Project Paper. Project Management must provide such leadership at the regional level on a continuing basis rather than depending on eventual consensus among discussion groups. It is quite possible that the responsibility rested in CORECO by the recent MAGA Reglamento will finally resolve this problem, especially if its decisions are effectively implemented by an "executive secretary" service.

Finally, the time frame for accomplishing the successive steps in the project was unrealistic. The collection and analysis of baseline data was intended to guide the research on diversified farming. The research results were to guide the implementation of model farms. Both of the above steps are needed to provide adequate basis for training extensionists and "farm guías". The model farms were to serve as diffusion points to the surrounding community. In the actual implementation of the project, most of the above steps are being taken at the same time. This is due in part to the early problems of implementation, but it is also forced by a design that does not allow enough time for orderly development of each step.

B. Project Implementation

1. Small Farm Management Survey

The project planned to use an analytical survey of a random sample of small farms in the Region as a guide to the research group, as required information in training extensionists and "guías", and as a basis for selecting participating farmers that have leadership characteristics. Several abortive attempts were made to gain information that could serve some or all of the above needs. None of these attempts were carried to a logical, useful conclusion. A considerable body of data remain on file, but is not analyzed nor digested. Each step in the project implementation has proceeded on the basis of "conventional wisdom" with only slight, if any, reference to the collected survey data. The project is still confronted with the decision of what to do about the survey data. A definitive decision in this matter is long overdue.

This question needs to be addressed from several points of view, including:

- a. What will be the value of additional data or further analyses of existing data to the research program at the present time?
- b. Is it too late to use information derived from surveys in the training of extensionists and guías?
- c. Will it be necessary or useful in identifying additional participating farmers in the next round?
- d. Will it be useful or necessary to measure changes created by the project?

The research program has indicated the need for identifying "homogeneous zones" which would permit making generalized recommendations by zones. This need remains. They also need further detailed information on the composition and resources of various farm enterprises. That information perhaps can be attained by careful observation of existing model farm installations. Furthermore, such observation of existing model farms can yield a considerable amount of information about the kind of research that is most needed by the project.

The extensionists and guías are "muddling through" their first year of diversified farm programs with little or no specific training. They are doing a remarkable job in view of deficiencies in resources and technical information as well as training. At this stage in project implementation it would be hard to justify the use of project resources to gather more data particularly if the alternative were to be to give the extensionist more transportation, viaticos, supplies and "exchange of experiences" type of meetings.

The identification of participating farmers for the existing Model Farms was based primarily on the information given by the extensionists. Our superficial impression of the farms visited was that they represented an acceptable spectrum of the variations in farmer resources and capabilities. It would be difficult to imagine an improvement in future farmer identification that would justify the diversion of additional resources for further surveys.

The measurement of changes caused by the project is important. An adequate description of the situation at the beginning of the project was a justifiable step. The many changes in the implementation process, however, has made the value of such overall description somewhat questionable. The sample of 44 model farms is very small to represent Region I. Therefore, to compare their improvement with the total Region is not very informative. It is quite likely that survey information on the next set of participating farms that are selected will be informative with respect to the impact of the project, and it will be much less expensive.

In light of the above observations, the Team feels that it would not be an efficient use of project resources to attempt to complete the survey as originally planned. It is, however, likely that useful information can be obtained from a completion of the analysis of existing survey data.

2. Farmer Impact

The majority of "model" and "peripheric" are owned by farmers who are members of local groups. Among the members of these groups and the extensionists and agricultural and livestock technicians, there exist channels and ways of communication. This is a potential for dissemination of the new concepts and practices introduced or to be introduced in the model farms, to other farms and communities. However, a plan has not been elaborated yet to promote this dissemination, without which the objectives of the project would not be met. The plan will have to take into consideration not only the dissemination potential but also some adverse factors. One is that the

selected model farms do not reflect or represent the conditions of the majority of small farmers that surround them. They represent, a tradition of credit and technical assistance, and also a technological and economic level considerable superior to the average. The majority of surrounding small farmers might be able to admire the benefits of the model farm and accept their technology, but they don't have the economic or technological resource to duplicate it. The second point, is that from the moment they are selected, more financial and technical assistance will flow to them. This increased assistance will rapidly broaden the gap between these farms and the surrounding ones, further reducing the possibilities of dissemination of technologies.

The Project's impact on the farms from April 1985 onward, can only be appreciated by viewing the difference between model and peripheric farms within the 12 "pole municipios" or the 25 municipios of the influence area and those outside these areas. These farms have been acquiring these characteristics for several years. The model farms show more agricultural results and are more accesible to observation and their owners are leaders who will actively promote their dissemination. The characteristics of these model farms are the reason for their selection. They reflect converging combinations of institutional and programmed impacts. Therefore, the real impact of the introduced technologies will eventually have to be measured on more average type farms.

The Project's immediate effects were supposed to contribute to family income through social payments and to minimize family food expenses through

food for work, both of which would incentivate soil conservation activities.

On the other hand, all participants in miniriego projects, vegetables, fruits and livestock modules have obtained credits of different amounts and terms, individually or in groups and in both forms. These debts place the small farmer and his family in a difficult situation with an uncertain future. Only continued adequate technical assistance in production and commercialization will allow them to pay their debts by maintaining or increasing their future production capacity without getting further into debt. Investment has increased production in small farms and this has allowed for more sales and more food availability. The obstacle to increase income will be however the inelasticity of demand if production is not adequately programmed. Nevertheless, greater availability and variety of food for the family and their animals has a positive economic value.

In the majority of small farms in the Altiplano, livestock work is done by all family members. On farms under the Project, especially model and peripheric farms, everyones work is intensified and modified. A dedication on the part of mothers and their teenage daughters towards livestock and commercial chores would mean less care of small children (1 to 5 years), deteriorating their nutrition and health. On the other hand, increase in family income and the availability of more and varied foods, have not as yet contributed directly to improve diet and health in all of these farms..

Use of pesticides, use of water sources, forest resources and soil conservation are four environmental aspects pertinent to the project.

The use of chemical inputs for agricultural purposes is now a generalized practice in the highland. When not used it is due more to lack of money than of knowledge. Promotion of use of manure and urine collectors among small farmers, and application of organic fertilizers, have diminished the use of chemical fertilizers. At the same time, however, the promotion and practice of a diversified horticulture in the area has increased the use of pesticides, including some which are prohibited in the United States. Owners of the Diversified (model) and Peripheral farms have technical assistance to prevent abusive use of pesticides, but the increase of diversified farms beyond the reach of assistance challenges the prevention of abuse.

At some spots within the project area where the average farm size is 12 x 12 yards, under intense and profitable horticulture the owner can afford and uses more pesticides and of a different type than the actually needed. At their cooperative store they ask for "something good for carrots" and the farmer in charge of the store at the time gives them what they ask for. Sometimes they know the name of the product and sometimes recall the recommended doses. The farmers in some places can be observed spraying highly toxic pesticides without a mask, against the wind, or throwing water on the leaves with wooden shovels, sweeping down the chemicals. No technical diagnoses has preceded the operations concerning either the type or doses of pesticide. Resulting residues in vegetables and pollution of water sources and corn fields could contribute to high levels of pesticides absorbed through ingesting and breathing by many families participating in seasonal emigrations to the coffee and cardamom plantations on the south coast.

The mini-irrigation systems installed arise from the available water springs and sources. No chemical analysis of the water quality is carried out, but several technicians show some concern regarding the future of the sources, and on their own initiative, have started to plant aliso trees around the springs and water sources. This practice, together with a program of regular reforestation, should be generalized to the project area. The construction and use of "Lorena" stoves (mudd, sand, and a chimney) promoted by the extensionist, which allow for a more rational use of energy and diminishes the need for firewood, would also be important to prevent deforestation, erosion, and drought. Research to identify factors of resistance to cooking in varieties of beans, corn and other staples, and generation of easy-to-cook varieties would also be important.

The emphasis on building of terraces with grass-protected slopes, a regular component of the project, has had the twofold function of preventing erosion and providing food for livestock.

Much criticism has been leveled at the selection of sites for the model farms and also at the use of the term "model farms". These criticisms are valid when viewed from the perspective of the initial project paper. They become much less serious, however, when viewed from the perspective of the present status of the project.

It is true that the selected farm sites cannot be considered to be representative of the population of small farms in the Region. It is perhaps fortuitous, however, that "better farms" were chosen because in reality they

have become "experimental units". The technology that was introduced in the farming systems was basically untested, and it would have been almost disastrous to have started "experimenting" with these systems on the poorer, less accesible farms. Thus, the technical staff of the cooperating agencies are to be complimented on having gotten 44 "experiments" underway. They now need to recognize, however, that this was perhaps an essential first step that should have been anticipated in the initial design. They should change their attitude towards these installation by now thinking of them as "learning centers" and extract from them maximum information and experience that can guide the selection and implementation of a "second generation" of diversified farms.

3. Loan & Grant Fund Utilization

According to the information obtained from the AID Mission, as of June 30, 1985 US\$ 2.4 million had been used in resources from the Loan and Grant components; that is, about a 26% of the assigned total of US\$ 9.2 million.

If August 28, 1981, is considered as the effective date of project initiation, when the agreements were entered into effect between the Government of Guatemala and the Agency for International Development "AID", the project has been in effect for about four years, equal to 73% of its implementing life, which was established at five and a half (5 1/2) years. It is evident that the project is out of phase if we look at the total financial implementation figures of 26% versus 73% of time elapsed.

Diverse circumstances mentioned in this report have influenced the project's slow implementation during its first years. It has been suggested that updating and reorienting the project should be undertaken to bring the documents into agreement with the present status of the project.

It is also necessary to adjust the budget to take into account the price increases that have occurred in recent years with respect to operating expenses and physical installations.

It must be recognized that direct and indirect project impacts require a long and medium-term constant follow-up, in order to evaluate the results obtained from the project in the target area of farmers' families living in the highland.

This suggests consideration of the following action :

- 1) Review and update the project according to the modifications which have taken place during the life of the project.
- 2) Extend the term of execution for a period between two (2) or three (3) years as a minimum.
- 3) Anticipate budget increases to insure an effective execution, considering the present cost situation and an adequate project coverage.

Favorable decisions on the above, should include as conditioning elements the adoption of methods and procedures recommended in this document, to insure an increased effectiveness in the final stages of the project.

4. Institutional Incentives

There are few possibilities for providing incentives to organizations participating in a Project of this nature. The implementation of this Project took place at the time when the public organizations lacked financial and material resources to execute their ordinary programs. For this reason the Project is an incentive in itself by providing resources and enabling the organizations to keep a certain level of activity that would otherwise be severely curtailed.

This reason has prompted participant organization, especially the centralized ones (DIGESA, DIGESEPE), to convey the highest priority to the Project in Region I.

Training opportunities are also a good incentive, especially for ICTA, because of its longer term vision and its consequent more ambitious plan of development of human resources.

The opportunity to get equipment is another source of interest, since it makes it possible for the organization to renew vehicles, primarily. It enables the executing organization to keep their activities going even though when the Project is over, they will be exhausted.

Getting the corresponding credit for their work, and future opportunities, are also incentives that deserve more attention and application, since the participating organizations seem to be competing to a certain degree. In other words, organizational leadership is an important element to attainment of goals. Therefore, it would be important to define a division of functions and assign to each organization a leading role in its field of expertise, and provide the necessary support for the best performance of these roles.

In this context, it would be advisable to recognize and adopt ICTA's suggestion to consider the "model farms" as experimental fields and centers of observation, rather than diffusion poles.

Among the executing organizations, there is also interest in a better use of the technical support provided by the Technical Assistance Team. In this regard, ICTA would like to have within its organization all of the international and national advisors; DIGESEPE would take the Livestock specialists and DIGESA would take the vegetables, fruits, irrigation and marketing advisors. There is considerable merit in these suggestions.

5. Training

The lack of a specific short-term training plan, which defines clearly the goals to be achieved under each activity, lead to the assumption that financial resources under that line item might be underutilized.

It is necessary to define which part of the staff is to receive

priority training and especially what should be the course content for each of the activities considered, in response to the needs under this project in particular. In this sense, it seems wiser to design the course content and training programs locally, in order to comply with the expectations of the project, instead of sending technicians abroad to training courses previously designed in a generalized manner. Nevertheless, we have to bear in mind that participation in this kind of events is considered as an incentive, rewarding individuals with good work performance. It is even possible that events programmed to be carried out locally, continue being considered as incentives for participants; this will depend on the originality of the persons implementing them.

On the other hand, it should be noted that some isolated formative activities have been carried out addressed towards extensionists, as a result of the interest of some members of EAT and some professionals from the executing agencies. This is, however, not part of any pre-conceived plan.

According to the Project Paper, it was to be expected that ICTA would be receiving in-service-training from EAT, if the team was settled within the institution's offices. This is something which should happen as a consequence of having varied the implementing strategy.

Post-graduate studies for technicians from ICTA, could be carried out as programmed (during the last two years of the project), although in a smaller number, but not as part of the strategy to relieve the national and foreign technicians.

6. Technical Assistance

The overall composition of the Technical Assistance Team is quite good at present, with the exception of the lack of someone specifically involved in marketing. The technical competence of the Technical Assistance members is variable, but generally acceptable for the needs of the project. The Team Leader has done a remarkably good job of keeping his team members oriented to their tasks. The major question relating to technical assistance lies in the organizational pattern within which the Team Members are working. Our major concern is to find a way to better fit Technical Assistance members into the organizational structure to take greatest advantage of the present status of the project.

Several factors need to be kept in mind in seeking an improved institutional affiliation for Technical Assistance members:

- a) ICTA will need much more intimate contact with Technical Assistance if they accept the suggestion of using existing model farms as "farm trials" involving various combinations of crops and livestock. Assessment of the technological, economic and social aspects of these trials will form the basis for new, improved diversified farm installations in the next round. This effort should receive all the support and help that Technical Assistance can provide. Such help can best be supplied if appropriate Technical Assistance members are assigned to work in ICTA.
- b) DIGESA and DIGESEPE need to adjust existing model farm practices as

rapidly as experience from the total project warrants. They also need to develop plans for future model farms which are based on the total information available in existing installations. The presence of Technical Assistance members within their organization should facilitate gaining such information and incorporating it into training programs for their extensionists and guías.

- c) The link between research and extension remains to be strengthened. Recently, the climate has improved for building a strong bridge between these functions. The presence of Technical Assistance members on each side of the bridge should hasten the formation of solid linkage, specially if the Team Leader and coordinator are instructed to give this their attention.

- d) One of the objectives of the project is to strengthen the capability of the four participating institutions to better serve the small farm sector. This is accomplished mainly by strengthening the technical personnel and the national counterparts are usually the most affected. The assignment of national Technical Assistance members to one of the organizations might serve as a first step in the permanent involvement of existing TA counterparts in the national programs. The Evaluation Team feels that the above factors suggest an early move toward locating many of the Technical Assistance members within the participating organizations. This should be undertaken in consultation with appropriate Regional Directors. This may be done quickly with certain Technical Assistance members, but others may have to await the further organizational

development. In any case, the early adoption of a policy in this respect would be helpful.

C. Project Changes

1. Extension of Time

The project was very slow in getting underway and actual model farm installations were only started in April of 1985. According to the original plan, the project will terminate in 1986. There is every reason to feel that the full term of field work (four years) should be authorized. This would mean an extension of two to three years under the existing project design. This would entail extending the time for expenditures of loan funds and adding additional grant funds to keep the Technical Assistance services intact. It also would logically include additional grant funds for purchase of motorcycles and bicycles for extensionists and guías.

2. Project Redesign

The basic objectives of the project remain unaltered and uniformly accepted. Certain of the steps in implementation have been changed rather drastically. The role of the preliminary surveys has been completely bypassed and its continuation as an integral part of the project is questionable. The role of ICTA has changed, but it should continue to supply technological inputs to the project under a new approach. The other participating agencies continue their contributions as planned. These changes do not appear to the

Evaluation Team to be great enough to justify a formal redesign of the project but they will entail bringing work plans, budgets and other documents into agreement with the present situation.

VII. RECOMMENDATIONS

The team makes the following specific recommendations for the continuation and improvement of the Project.

A. Small Farm Management Surveys

- a. Analysis of existing survey data should be completed following precise analytic outlines. Such outlines should specify the exact tabulations needed and the use that is to be made with each.
- b. Additional surveys should be undertaken only when pre-survey analyses have been presented to show exactly how each set of data will be used and what contributions will be made by the resulting information. It is not enough to justify further data collection on the basis of "it would be nice to know".

B. Model Farm Sites

- a. The original plan for the project visualized the "Model Farms" as instructional areas for the participating farmers and as diffusion loci for the technology being incorporated. Change in the bases for selection of these Model Farms and the selection of the technology to be incorporated in each, now dictates a change in the role the existing model farms must play in the project. It is recommended that Project administration now regard these farms as learning

centers from which should be extracted maximum information and experience by all participating agencies, including ICTA. These experimental, "learning centers" must be exploited to the maximum in planning the next generation of "Model Farms" in the Project.

- b. The second generation of model farms should be selected with the benefit of the knowledge gained from the initial groups. That is, information should be gleaned from the first group with regard to the technology that is technically possible, economically feasible and socially acceptable. The second generation farms should be selected on the basis of those for which the technology is most fitting. Hence, not only will physical resource conditions but also social considerations, including economic ability to take risks and change proneness, should be used in selecting the next group of farms.
- c. Both first and second generation farms should be the foci of a carefully developed plan of work. That plan should provide for determining for each farm a project maximizing combination of enterprises with linear programming on the basis of the most recent physical input-output data available. Further, detailed enterprise records should be kept on every farm. Finally, the plan of work should include a detailed program of activities to be undertaken by home economists designed to improve the nutrition of the farm family as the output of the farm is diversified and its income increases.

C. Organization

- a. It is necessary to define clearly the levels of authority and responsibility for each group identified in the Organizational Chart of the Project, in order to obtain more efficiency and effectiveness in their activities.
- b. The division of work responsibilities corresponding to each executing unit and other components of the organization of the project should be clearly defined using programming systems for reaching objectives and goals which are easily verifiable.
- c. It is recommended that the Technical Coordinator of the Project, with full cooperation of TAT (EAT), be given the responsibility to follow-up the execution of plans, programs and other actions approved by CORECO or the Executive Commission of the Project, and of presenting to CORECO the evaluation reports at the required periods of time.
- d. To correct the coordinating problems which have been detected, recommendation is made to adopt a system which includes the following:
 - 1) Activities which contribute to increased awareness of the possibilities and advantages of coordinated interinstitutional planning and execution.

- 2) Design and function of interinstitutional liaison mechanisms at all levels of decision-making positions. In this sense, The Technical Coordination Unit has a very important role to play.
 - 3) Common frames of reference for the decision-making and action positions.
 - 4) An adequate flow of information at all levels and channels.
- e. It is recommended that ICTA's role in the project be redefined to include active monitoring and evaluation of existing "Model Farms". ICTA should regard these farms as "experimental farms for testing various combinations of crop and livestock technologies under farm conditions". They should report regularly to DIGESA and DIGESEPE their observations on the technological, economic and social behavior of the farms. They should participate in the selection of the technological components of the next generation of diversified farms within the project.

D. Training

- a. Accelerate the necessary arrangements for the four professionals proposed by ICTA, to travel during the next month of August to initiate their masters program in the New Mexico State University.
- b. Direct available resources to train the urgent and priority sectors

at lower levels (ag. promoters, extensionists, home economists, credit agents, etc.)

- c. In agreement with b. above, prepare a detailed short term training plan, with course content, number of participants, probable place and date of training, person or entity responsible for conducting course, implementation cost and form of financing (by contract or by administration).

E. Technical Assistance

- a) The most urgent action needed in the area of technical assistance is the filling of the marketing position to be recruited in the U.S. Not only should this person be posted immediately, but also several short term consultancies should be earmarked for this area. The potential problems the project may encounter in marketing are sufficiently important to justify the initiation of a program of work in this area with all deliberate speed. In addition, the positions of soils/irrigation specialist and vegetable expert, both to be recruited in Guatemala, need to be filled soon. Formal procedures for filling them should be initiated.
- b) If the model farms are used for research purposes by ICTA and the information obtained is translated into a form for ready dissemination by the extension agencies, all those of the agencies will need all of the technical assistance they can command. Hence,

the majority of the EAT should be assigned to the agencies where they can be most effective. However, they should preserve their identity as a technical assistance team by such things as maintaining a weekly meeting schedule. Regardless, supervision should continue to reside with the Chief of Party of EAT.

F. Logistical Support

- a. Provide more and better resources to the lower executing level, for the purpose of facilitating their mobilization and work (vehicle, fuel, per diem).
- b. Provide minor equipment and field work tools, to be used by extension teams which work at the farm and neighbourhood levels.
- c. Speed the procurement and contracting systems, so that project inputs are received on a timely basis.

G. Construction

- a. Reconsider the need to construct the facilities which are not yet initiated, taking into account changes in priority considerations. Specifically with respect to the training centers, the number could be reduced and budget adjustments be made to insure the completion of two of them, for example, or even transferring funds for this purpose to other priority line items.

- b. Review and speed up reimbursement procedures to complete the construction of ICTA's laboratory.
- c. Review and speed up disbursement procedures to complete the procurement of the laboratory equipment.

H. Project Changes

- a. It is recommended that the field work in this project be allowed to continue for the full four years contemplated in the original design. This will require an extension of the project for two or three years beyond its projected termination date. It is also recommended that the full complement of technical assistance be continued through the extended time.
- b. There have been a number of significant changes in the implementation of the project. It is recommended that the project documentation be brought up to date to reflect these changes through the medium of project amendments rather than attempting a complete redesign of the project.

I. Financial Support

- a. Considering the increase in costs observed during the last years and the rising prices which is being experienced at the present time, it is recommended that the financial resources be reprogrammed so that

the project and procurement can be carried out as envisioned.

- b. It is necessary, as well, to plan for new allocations of resources to cover the increases in present operating costs plus the new increases which might come if it is decided to extend the term of the Project. The Technical Assistance and Coordination of the Project must be provided for as long as the term of the project is extended..
- c. Sufficient financial resources should receive high priority so that the group of extensionists and promoters can perform their jobs adequately providing them with mobilization, materials and equipment indispensable for the efficient performance of their activities in the field and at the office.
- d. Considering the present economic situation faced by Guatemala, it is recommended to study the possibility of covering the increments in costs of the Project with additional grant resources, or with resources from a new loan until such time as the country's economic recovery allows for an increase in their contribution.
- e. It is necessary to review and modify the production costs utilized by BANDESA for grant loans, since the actual do not reflect real costs.
- f. It is necessary that AID and the Government of Guatemala reach an agreement and find a quick solution to the problem derived from IVA

charges, which is found in several projects negotiations.

- g. It is recommended that necessary measures be taken in order to speed up the bureaucratic delays in payment and reimbursement of funds derived from project execution.

VIII. APPENDIX

A. Terms of Reference for Evaluation Team

I. AID Project Title: Small Farmer Diversification Systems Project
(520-0255)

II. Objective:

The evaluation team will conduct a mid-term evaluation of the Small Farmer Diversification Systems project. The evaluation is expected to provide concrete, specific guidance for the implementation of the project during the remaining two years as well as quantify the project's immediate impact on the target area.

III. Statement of Work

A. Background

The Small Farmer Diversification Systems Project was authorized in June 1981. The Grant Agreement for a total of \$2.6 million was signed with the Government of Guatemala (GOG) on August 28, 1981, while the Loan Agreement for \$5.5 million was signed on September 24, 1981.

The goal of the project is to improve the well-being of rural Guatemalans living in the western Highlands. The sub-goal is to improve small

farm management and increase the return to factors of production of the small farm enterprise. The purpose is to strengthen public sector capacity to stimulate small farm diversification from basic grains to higher value diversified crops and small livestock of greater labor intensity.

USAID support to the project provides technical assistance, training, commodities, construction, credit and social cost payments, project coordination, a credit study, a farm management survey, a nutritional impact evaluation, and a 4-S Club rotating fund. These inputs help to support the development and dissemination of appropriate technologies for small farmer diversification as well as continued support for small-scale irrigation and soil conservation activities which have already resulted in spontaneous diversification. The project is being implemented in the Ministry of Agriculture's Region I, the six northwestern Departments of the country.

The project follows and builds upon earlier USAID-supported activities in soil conservation, small-scale irrigation, basic grains (corn and beans) production programs, and access road construction. The Highlands Agricultural Development Project (520-274) provides additional support for soil conservation and small-scale irrigation, as well as access road construction and reforestation in the Ministry of Agriculture's Regions I and V.

Conditions precedent to the first disbursement under the Small Farmer Diversification Grant were approved on June 24, 1982; the Ministry of Agriculture's coordinating unit (UCPRODA) was contracted on June 15, 1982, and subsequent conditions precedent under the Grant were approved on October 8,

1982. Initial conditions precedent under the Loan were approved on July 23, 1982, and subsequent conditions precedent on December 10, 1982.

A PIO/T requesting a PASA with the USDA was forwarded to Washington in June 1983, and the team leader arrived in Guatemala on November 7, 1983. The PIO/T requested five long-term positions: Team leader, vegetable specialist, fruit specialist, livestock specialist and farm management/systems specialist. As of December 1984 the fruit specialist position had not been filled on a full-time basis and the short-term fruit specialist, while extremely well qualified technically, does not speak Spanish. The PIO/T requesting the PASA also stated that six long-term Guatemalan specialists would be contracted to work with the USDA team: agricultural economist, livestock specialist, farm management/systems specialist, rural sociologist/anthropologist, fruit specialist and vegetable specialist.

The technical assistance team - in collaboration with personnel from UCPRODA, ICTA (Instituto de Ciencia y Tecnología Agrícola), DIGESA (Dirección General de Servicios Agrícolas), y DIGESEPE (Dirección General de Servicios Pecuarios), and BANDESA (Banco Nacional de Desarrollo Agrícola) - has been developing model farm plans, identifying cooperating farmers, assisting in farmer surveys, developing and carrying out training, developing coordination mechanisms and making logistical arrangements. As of December 1984 detailed planning for project implementation is well underway and initial farmer contacts have been made.

The mid-term evaluation called for in the Project Paper, for early

1985, was based on the assumption that early project implementation would have proceeded more rapidly than it has. Nevertheless, this is an appropriate time to review and revise, if necessary, the plans and arrangements which have been made for project management, administration, coordination, technical assistance, training, logistics, construction, identification of appropriate farmer cooperators and farm modeling.

B. Scope of Work

The evaluation team will consist of an agricultural economist/team leader and a farming systems specialist from the U.S. and a rural sociologist/anthropologist, a controller/administrator, and an agronomist from Guatemala.

They will spend three weeks (18 workdays including Saturdays) carrying out the evaluation at the project site and one week (5 workdays) preparing recommendations and writing the final report in Guatemala City.

The evaluation team will review the Project Paper and Loan and Grant Agreements, as well as documentation of related projects such as the Small Farmer Marketing Project and the Highlands Agricultural Development Project, and compare them with implementation, training and technical assistance plans, revised logical framework and similar documents in the files of the implementing agencies, UCPRODA, the technical assistance team, USAID, and the Ministry of Agriculture, Livestock and Food (MAGA), in order to determine if actual implementation arrangements are satisfactory to support the achievement

of the project's goal, purpose, and objectives. In making this determination and arriving at appropriate recommendations, the evaluation team will also interview participating and non-participating small farmers and members of their families, project personnel (UCPRODA, ICTA, DIGESA, DIGESEPE, BANDESA, and the technical assistance team), national leaders of the implementing agencies, USAID staff, and personnel from USPADA (Ministry of Agriculture's Planning Unit) and INCAP (Nutrition Institute for Central America and Panama). Included in this review will be any changes as a result of this project in the quality of water, soil, local flora and fauna. This review will also evaluate pesticide procurement and field use in the project area.

The evaluation team will spend its first full working day in the USAID offices discussing details of the evaluation content and logistical operations, as well as receiving a briefing on Guatemala in general and the project in specific. They will meet with the USAID Office of Rural Development (ORD) Project Officer as well as with other USAID officials related to the project. During the following two weeks the evaluation team will review project documentation, visit the project area, and carry out interviews as described above.

While the scopes of work for individual team members describe specific areas of responsibility for each team member, the evaluation is expected to be a team effort with each team member bringing his/her professional perspective to focus on the complexities of implementing a farming systems project involving four different government agencies on a daily basis and additional agencies on a less regular basis. Team members should meet together on a

regular basis to discuss their findings and observations even when the discussions may not be directly relevant to the disciplines or specific assignments of individual evaluators. While the team approach should apply to all aspects of the evaluation, each team members is expected to focus on the following aspects of the projec:

1. Are the implementation, financial technical assistance and training plans submitted in fulfillment of the conditions precedent adequate? If so, are they being followed in a coordinated manner? Are modifications to the plans adequately documented and coordinated?
2. Are the preparation and implementation of the work plans of the various implementing agencies accomplished in a coordinated manner? Are they likely to facilitate the achievement of project objectives and end-of-project status indicators?
3. Is the composition (skill mix) of the technical assistance team appropriate to support the achievement of project objectives? Are departures from technical assistance described in the project paper appropriate? Are actual team members appropriately qualified technically, linguistically, culturally? Will team members be able to complete their work and make their contribution toward achievement of the project purpose within the time limits of the PASA agreement? Are arrangements for counterparts, counterpart relations, and logistic support (office space, equipment, etc.) for the technical assistance team satisfactory?

4. Are the institutions that are directly involved in this project (DIGESA, ICTA, BANDESA, DIGESEPE) providing counterparts of sufficient technical level to benefit the transfer of technology?
5. What is the overall cooperation and coordination between USAID, the participating institutions and UCPRODA?
6. Is the modified logical framework more supportive of achievement of the project goal, purpose, and objectives than the logical framework included as Annex B of the Project Paper? Are the logical framework assumptions, especially those relating to marketing and trained personnel, valid? Are the inputs (especially technical assistance and training) shown in the revised logical framework more likely to lead to the accomplishment of the project purpose than those included in the Project Paper?
7. What progress has been made toward the achievement of end-of-project status (EOPS), especially those listed on page 78 of the Project Paper? Are the EOPS achievable?
8. Do project implementors, at all levels, have a satisfactory understanding of the project and the interrelation of its various activities?

C. Reports

Individual team members will prepare their reports and discuss them with the team leader prior to preparation of the final report. The team leader will coordinate the work of all team members to insure that one collaborative draft report is delivered to the USAID/ORD Project Officer three days prior to the scheduled termination of the evaluation team. At least one day before the team's departure, the team will meet with the Project Officer and other representatives of USAID and the GOG to discuss the draft report. Following this meeting the team will revise the draft report, where necessary, before their departure; the team leader will remain in Guatemala one additional day to complete these revisions. The final report with recommendations shall be prepared in both English and Spanish.

The team will determine the format of the report, but it should contain a summary section with brief discussions of problems identified and recommended solutions for both the GOG and USAID.

D. Logistic Support

USAID will provide an office for the use of the team while in Guatemala City. Office space is unlikely to be available at field sites. Funds are included for twelve days of secretarial services to prepare draft and final reports.

USAID word processing equipment may be used if contracted secretarial

services are trained in its use. Reproduction of documents can be provided at the USAID offices. Funds are included to provide for in-country transportation.

VIII. APPENDIX

B. Evaluation Team

Eng. Ricardo Santa Cruz Rubí

M. A. Business Administration

Rural Development Office

USAID/Guatemala

Lic. Mario Antonio Loarca Muralles

Agronomist and Business Administrator

UCPRODA: Administrative and Financial Coordinator

Guatemala

Lic. Danilo A. Palma

M. A. Anthropology, Lic. Sociology

Technical Assistance Team

Sociologist/Anthropologist

Quezaltenango

Dr. Melvin A. Blase

President, University Faculty Associates

Columbia, Mo. USA

Dr. Jackson A. Rigney

Dean Emeritus - International Programs

North Carolina State University

Raleigh, N. C., USA

C. Itinerary of Evaluation Team

| DATE | HOUR | |
|------|------|--|
| 7/2 | P.M. | Blaise and Rigney arrive Guatemala |
| 7/3 | A.M. | Blaise, Rigney, Santa Cruz and Palma Interview officials in ORD-AID/Guatemala |
| | P.M. | Inteview officals MAGA, DIGESA, DIGESEPE, BANDESA e ICTA |
| 7/4 | A.M. | Travel to Quetzaltenango |
| | P.M. | Interview regional officials in DIGESA, DIGESEPE, BANDESA and ICTA |
| 7/5 | A.M. | Visit model farms in San Pedro Sacatepequez and San Marcos |
| | P.M. | Visit model farms in Tejutla, San Marcos |
| 7/6 | A.M. | Interview with regional supervisor and coordinator of district, San Martín Sacatepéquez, Quetzaltenango Interview DIGESA's member of the Export and Marketing Commission of the Agricultural Public Sector Prepare communications for visits next week |
| | P.M. | Interview DIGESA's head of technical Assistance Unit Review project documents Finalize team schedule |

- 7/7 A.M. Develop team strategy for visitations
- P.M. Interview systems advisor of the Project's Technical Assistance Team
- Review project documents
- 7/8 A.M. Blaise, Rigney, Santa Cruz, Palma, Loarca visit subregional directors. Local agencies and model farms in Sololá, Sololá
- P.M. Visit local agencies and model farms in Santa Lucía Utatlán, Sololá
- 7/9 A.M. Blaise and Palma visit local agencies and model farms in Totonicapán, Totonicapán
- P.M. Visit local agencies and model farms in Momostenango, Totonicapán
- A.M./P.M. Rigney, Santa Cruz and Loarca visit officers and field work of ICTA
- 7/10 A.M./P.M. Blaise and Palma visit officers and field work of ICTA model farms in Huehuetenango and Chiantla, Huehuetenango
- A.M./P.M. Rigney, Santa Cruz, Loarca and Palma visit officers and field work of DIGESA and DIGESEPE
- 7/11 A.M. Blaise, Rigney, Santa Cruz, Loarca and Palma visit subregional directors, local agencies and model farms in Chichicastenango, Quiché
- P.M. Work session with CORECO
- 7/12 A.M. Travel to Guatemala City
- P.M. Visit with ICTA manager

7/13 Rigney return to USA
Blaise, Palma, Santa Cruz and Loarca start preparing Report Draft

7/15-19 Blaise, Palma, Loarca, Santa Cruz review project documents, follow-up visits, report drafting in Guatemala City

7/20 Blaise return to USA

7/21 Rigney arrives to Guatemala

7/22-24 Rigney, Santa Cruz, Loarca and Palma review project documents, follow up visits, report drafting in Guatemala City

7/24 P.M. Blaise arrives Guatemala

7/25 Blaise, Rigney, Santa Cruz, Loarca, Palma finalize draft report in Guatemala City

7/26 Preliminary oral report to USAID/Guatemala

7/27-29 Preparation final report

7/29 Present preliminary report to GOG

7/30 Blaise return USA

7/30-8/2 Rigney, Santa Cruz, Loarca and Palma finalize report in Guatemala City

D. List of Agencies and Persons visited

1. Ministry of Agriculture, Livestock and Food (MAGA):

Ing. Agr. Arturo Aguirre Escobar

Vice Minister of Agriculture and Food

2. General Directorate for Agricultural Services (DIGESA):

- Ing. Agr. Carlos de León Prera

General Director

- Ing. Agr. Hugo Orellana

General Sub-Director

- P. Agr. Domingo Conde P.

Regional Director, Region I

- Lic. Guillermo Díaz

Chief, Soil Conservation Project, Technical Assistance Unit
Coordinator, Region I

- Lic. Oscar López Cordero

Chief, Socioeconomical Department, Región I, and member of the
Sectorial Commission of Non Traditional Export Products

- P. Agr. Víctor Mérida

Sub-Regional Director (ad interim), Huehuetenango.

- P. Agr. Edgar Cuá Tuy

Sub-Regional Director I.3 (ad interim), Sololá, Totonicapán y
Agency Chief, Sololá.

- P. Agr. Hugo de León Paredes
Sub-Regional Director I.4. Quiché. (telephone)
- P. Agr. Ottoniel Rivera
Horticultural Technician, San Pedro Sacatepéquez, San Marcos
- Sr. Esteban González
Farm guide, San Pedro Sacatepéquez, San Marcos
- P. Agr. Léster Pérez Robledo
Agency Chief, Tejutla, San Marcos
- P. Agr. Carlos Balmaca
Agricultural promoter, Tejutla, San Marcos
- P. Agr. Alfredo Avila
Coordinator, San Carlos Sija, Quetzaltenango
- P. Agr. Josué Salanic
Supervisor, Quetzaltenango
- P. Agr. José Fidelino Monteros
Fruit Coordinator, San Martín Sacatepéquez, Quetzaltenango
- P. Agr. Rudy Navichoc Calito
Coordinator, Sololá, Sololá
- P. Agr. Rafael Rangel
Agricultural Promoter, Sololá y Santa Lucía Utatlán, Sololá
- P. Agr. Marco Antonio Rivera
Agency chief, Totonicapán
- Sr. Pedro Adrián
Farm guide, Totonicapán

- Profa. Leticia de García
Promoter of Home Improvement, Totonicapán
- P. Agr. Carlos Suárez
Agricultural Promoter, Momostenango, Totonicapán
- Profa. Mercedes González
Promoter of Home Improvement, Momostenango, Totonicapán.
- P. Agr. Edmundo Gómez
Agency Chief, Chiantla, Huehuetenango
- Fit. T. Raúl Rodríguez
Agency Chief, Chichicastenango, Quiché
- P. Agr. Manuel Ordoñez
Agricultural Promoter, Chichicastenango, Quiché
- Sr. Manuel Saquic
Farm guide, Chichicastenango, Quiché

3. General Directorate for Livestock Services (DIGESEPE)

- Lic. Jorge Mario Búcaro
General Director
- Dr. MV. Efraín de León Régil
Regional Director, Region I
- Lic. Carlos Porres
Administrative chief, Region I
- Lic. Luis Antonio Chan
Chief, Study and Projects Unit, Region I

- P. Agr. Julio Romero
Chief, Livestock Station Llano del Pinal
- Dr. MV. Jorge Mario Ligorría
Sub Regiona Chief, San Marcos
- Sr. Ubaldino Mérida
Livestock Auxiliary, San Pedro Sacatepéquez, San Marcos
- Lic. Humberto Gómez
Chief, Ovines Station, Serchil, San Marcos
- Sr. Walter Alvarado
Livestock Auxiliary, Sololá, Sololá
- Dr. MV. Ismael Martínez
Department Chief, Totonicapán
- Dr. MV. Juan Carlos Moreira
Department Chief, Quiché
- P. Agr. Freddy Barrios
Livestock Auxiliary, Chichicastenango, Quiché
- Sr. Mario Ovalle
Livestock Auxiliary, Chichicastenango, Quiché

4. Agricultural Science and Technology Institute (ICTA)

- Ing. Agr. Astolfo Fumagalli
General Manager
- Ing. Agr. Vinicio Hernández
General Sub-director
- Ing. Agr. Horacio Juárez
Technical Director
- Dr. Sergio Riano
Socioeconomics Coordinator, ICTA - PRECODEPA

- Ing. Agr. Manlio Castillo
Chief, Communications Department
- Ing. Agr. Marco Antonio Maldonado
Regional Director, Region I
- Ing. Agr. Helmuth Cardona
Chief, Fruits Program, Region I
- Ing. Agr. Jorge Trápaga
Chief, Wheat program, Region I
- Ing. Agr. Juan Bolaños
Chief, Corn program, Región I
- Ing. Agr. Josué Vásquez
Fruits Program Technician, Region I
- Ing. Agr. Luis Enrique Santizo
Fruits Program Technician, Region I
- Ing. Agr. Rony de Paz
Horticulture Program, Technician, San Marcos
- Ing. Agr. Edgar García Hernández
Technology Triasl Technician
- Lic. Edgar Portillo
Administrative Director

5. National Agricultural Development Bank (BANDESA)

- Lic. Amílcar Bárcenas
General Manager
- P. Agr. Luis Felipe Xitumul
District Director, Region I
- P. Agr. Jaime Morales
Credit Agent, Huehuetenango
- P. Agr. Felipe Hernández
Agency Chief, Sololá

6. Regional Coordinating Committee (CORECO)

- P. Agr. Domingo Conde Prera
President (in turn)
DIGESA
- P. Agr. Luis Felipe Xitumul
BANDESA
- Dr. MV. Efraín de León Regil
Secretary (DIGESEPE)
- Ing. Agr. Marco Antonio Maldonado
ICTA
- Ing. Agr. Carlos Orlado Arjona
Technical Coordinator, Project 520-0255/520-T-034
- Lic. Billy J. Ross
Chief, Technical Assistance Team (EAT)

7. Agency for International Development, Guatemala (AID)

- Mr. Harry Wing
Chief, Office of Rural Development
- Mr. Cecil McFarland
Chief, Project 520-0255/520-T-034
Office of Rural Development
- Mr. Audón Trujillo
Office of Rural Development
- Lic. Gustavo Leal
Program Office
- Miss Concepción Castro
Controller's Office

8. Small Farmer Diversification Systems Project Coordinating Unit
(UCPRODA)

- Ing. Agr. Carlos Orlando Arjona
Technical Coordinator
- P.C. Ana María Arévalo
Accountant

9. Technical Assistance Team (EAT)

- Lic. Billy J. Ross
Chief EAT
- Ing. Agr. Guillermo Menegazzo
Fruit Advisor

- Dr. Gary Smith
Systems Advisor
- Lic. John Fitzgerald
Horticultural Advisor
- Ing. Agr. José Luis Monterroso
Systems Advisor
- Lic. Manuel Vega
Agricultural Economics Advisor
- Dr. MV. Alfonso Loarca
Animal Production Advisor
- Lic. Len Wooton
Fruit Advisor

10. Small Farmers

San Andrés Chapil, San Pedro Sacatepéquez (San Marcos):

- Mr. Bonifacio García - Diversified Farm
- Mr. Mariano García - Diversified Farm
- Mr. Rubén Castañón - Livestock Module

Los Puentes, Serchil (San Marcos):

- Mr. German Rodríguez - Diversified Farm

San Sebastian (San Marcos):

- Mr. Pablo Fuentes - Livestock Module
- Mr. Fernando Robles - Peripheral farm

El Rosario, Buena Vista, Tejutla (San Marcos):

- Mr. Marco Aurelio de León - Livestock Module
- Mr. Víctor Manuel Matul Pajoy - Diversified Farm
- Mr. Leonardo Matul - Peripheral farm

Sololá (Sololá):

- Mr. Julián Xiroy - Diversified Farm (Chuacruz)
- Mrs. Inés Chávez - Diversified Farm

Chichimuch, Santa Lucía Utatlán (Sololá):

- Mr. Santos Emiliano Iboj - Livestock Module

El Novillero, Santa Lucía Utatlán (Sololá):

- Group, 10 farmers members of the "El Novillero" Cooperative.
Technology Trial Field from ICTA.

Nimajac, Totonicapán (Totonicapán):

- Mr. Emanuel Santos - Diversified Farm
- Mr. José Culajá - Peripheral Farm
- Mr. José Félix Iahay - Diversified Farm
- Housewives group (including wives of visited farmers) in food activities with the Promoter of Home Improvement
- Farmers group (including owners of diversified farms) constructing a warehouse for potatoe's seeds (ICTA type) with the Farm Guide of DIGESA.

Chimequeyá, Momostenango (Totonicapán):

- Mr. Miguel Xiloj - Peripheral Farm

Sibilá, Chiantla (Huehuetenango):

- Mr. Tiburcio García - Diversified Farm
- Mr. Teodoro García - Diversified Farm
- Mr. Luis - Peripheral Farm

Quilinco, Chiantla (Huehuetenango):

- Mr. Norberto López - Peripheral Farm
- Mr. Pablo García - Peripheral Farm
- Mr. Victoriano Fidel López - Diversified Farm

Chicará II, Chichicastenango (Quiché)

- Mr. Manuel Tecún Huercas - Diversified Farm

Las Trampas, Chichicastenango (Quiché)

- Mr. Sebastián Morales - Diversified Farm and Livestock Module
- Mr. Tomás Piriquí Morales - Diversified Farm and Livestoc, Module