PD-AAQ-952

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: ____

DOCUMENT CODE: 3

2. COUNTRY/ENTITY: WORLDWIDE

3. PROJECT NUMBER: 936-5826

4. BUREAU/OFFICE: S&T/ED — 0

5. PROJECT TITLE (maximum 40 characters): COMMUNICATION FOR TECH. TRANSFER IN AGR.

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 93

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)
A. Initial FY 85 B. Quarter 4 C. Final FY 92

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

A. FUNDING SOURCE	FIRST FY 85 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	400			7,295		7,295
(Grant)	(400)	( )	( )	(7,295)	( )	(7,295)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1. A.I.D. Missions	500			12,138		12,138
Other U.S. 2.						
Host Country						
Other Donor(s)						
TOTALS $	900			19,433		19,433

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) FN	240	070		0		5,795		5,795	
(2) EH	600	070		0		1.500		1,500	
(3)									
(4)									
TOTALS				0		7,295		7,295	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 640 790

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)
A. Code
B. Amount

13. PROJECT PURPOSE (maximum 480 characters)

To develop and demonstate a more effective communication support system for technology transfer in agriculture.

14. SCHEDULED EVALUATIONS
Interim MM 08 YY 87 | MM 08 YY 89 | Final MM 08 YY 93

15. SOURCE/ORIGIN OF GOODS AND SERVICES
☒ 000 ☐ 941 ☐ Local ☐ Other (Specify) ____

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

17. APPROVED BY
Signature: David Sprague
Title: Acting Director, S&T/ED
Date Signed: MM 04 DD 17 YY 85

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

PROJECT AUTHORIZATION

NAME OF ENTITY: Worldwide PROJECT NO.: 936-5826

PROJECT TITLE: Communication for Technology Transfer in Agriculture (CTTA)

1. Pursuant to Sections 104 and 105 of the Foreign Assistance Act of 1961 as amended, I hereby authorize the centrally funded Communication for Technology Transfer in Agriculture Project involving planned obligations of not to exceed $7,295,000 grant funds ($5,795,000 from the Agriculture, Rural Development and Nutrition and $1,500,000 from the Education and Human Resources accounts) over an eight year period from the date of authorization, subject to the availability of funds in accordance with the AID OYB/allotment process, to help in financing foreign exchange and local currency costs for the project. It is expected that up to $12,138,000 of additional Mission project funds may be committed in support of this project.

2. The Project will apply mass communications methods to support technology transfer in agriculture in selected developing countries. It will provide technical assistance and in-service training in the use of communications to promote the adoption of simple, effective agricultural technologies among farmers. It will strengthen host country research and extension systems in these activities. A generalizable communications methodology will be produced. The project will also provide networking, knowledge exchange and dissemination worldwide of lessons learned in developing the methodology.

3. Special conditions of approval: None.

4. Source and Origin of Goods and Services:

a. Each developing country where training or other assistance takes place under this project shall be deemed to be a cooperating country for the purpose of permitting local cost financing.

b. Goods and services, except for ocean shipping, financed by AID under the project shall have their source and origin in a cooperating country or in the United States except as AID may otherwise agree in writing.

c. Ocean shipping financed by AID under the project shall, except as AID may otherwise agree in writing, be financed only on flag vessels of the United States.

Signature R.K. Zagorin Date: 5.15.85
Ruth Zagorin, S&T/HR

Clearances: S&T/PO, G.Eaton

2

ATTACHMENT

S&T FUNDING SOURCES
($1 = 1000)

	FY 1985	FY 1986	FY 1987
Req	400	1300	1300
Firm Sources			
S&T/ED	200	200	200
S&T/RD	100	100	100
S&T/AGR	100	100	100
Under Negotiation			
ARDN Account		900	900

May 13, 1985

MEMORANDUM

TO: S&T/HR, R.Zagorin

FROM: S&T/ED, D.Sprague DS

SUBJECT: Communication for Technology Transfer in Agriculture (CTTA): 936-5826.

Problem: Your signature is required on the attached PAF in order to approve a new project: Communication for Technology Transfer in Agriculture. This project will support agricultural technology transfer in at least nine countries and develop a generalizable communications methodology to support technology transfer worldwide.

Background: The need for increased and rapid adoption of improved agricultural practices is great in LDCs and likely to remain so as fertility rates remain high. Yet existing agricultural research and extension systems and present extension methods do not effectively reach present populations. There is great potential for improvement in promoting technology transfer by applying known mass communications methods to support and change these systems.

This project seeks to apply communications methods to technology transfer in agriculture through providing technical assistance and in-service training in the use of communications to promote the adoption of simple, effective technologies among farmers. It will strengthen host country research and extension systems in these activities. A generalizable communications methodology will be produced. The project will also provide networking, knowledge exchange and dissemination worldwide of lessons learned in developing the methodology. The project will initiate operations through a five-year competitive contract.

Discussion: This project was approved by the Rural Development Sector Council at its meeting of April 8, 1985. An Advice of Program Change is being prepared. A Table indicating FY 1985 - FY 1987 S&T funding sources is attached.

Recommendation: That you sign the attached PAF approving $7,295,000 of S&T funds for the eight year project. Up to $12,138,000 of additional Mission project funds may be obligated through project contractual instruments during LOP.

Clearance:
S&T/PO, G.Eaton
S&T/RD, C.Russell (draft)
S&T/AGR, A.Bertrand (draft)
GC/CP, S.Tisa (draft)

Drafter: S&T/ED, A.Meyer:235-8850:Wang0076R:5/13/85

4

PROJECT PAPER
COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE (CTTA)
PROJECT 936-5826

CONTENTS

SUMMARY i

1. PROJECT RATIONALE AND DESCRIPTION 1-60
1.1 Rationale 1
1.2 Statement of the Problem 2
1.3 Project Purpose 4
1.4 Project Plan 4
Phase I: Development of Communication Procedures 5
Pilot Site Descriptions: Honduras. 13
Ecuador 35
Peru. 44
Swaziland 54
Phase II: Diffusion of the Methodology 56
1.5 Project Outputs 58
1.6 Project Inputs 59
1.7 Beneficiaries 60

2. COST ESTIMATE AND FINANCIAL PLAN 61-68
2.1 Cost Estimate 61
2.2 Summary Budget Tables 61
2.3 Summary Obligation Schedule 61
2.4 Recurrent Cost Analysis 68

3. IMPLEMENTATION PLAN 69-71
3.1 Country Selection Criteria 69
3.2 Contract Plan 69
3.3 Key Contractor Personnel. 70
3.4 FY 85 Schedule of Project Events. 71
3.5 Management Responsibility 71
3.6 Relation to Other AID Projects 71

4. MONITORING PLAN 72-73
4.1 AID Management 72
4.2 Technical Steering Committee. 73
4.3 Reporting Requirements 73
4.4 Project Review and Evaluation 73

5. PROJECT ANALYSES 74-78
5.1 Financial and Economic Analysis 74
5.2 Social Soundness Analysis 76
5.3 Administrative Analysis 77
5.4 Technical Analysis 77
5.5 Environmental Analysis 78

ANNEX A: Log Frame Matrix
ANNEX B: Documentation of Support
ANNEX C: Scope of Work: USAID/Tegucigalpa PIO/T
ANNEX D: Honduras Evaluation
ANNEX E: Review of Prior Experience
ANNEX F: National Science Foundation Recommendations

PROJECT PAPER
COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE (CTTA)
(PROJECT 936-586)

SUMMARY

Project Purpose.

To develop and demonstrate a more effective communications support system for technology transfer in agriculture.

Statement of the Problem.

Traditional extension programs are recognized to have serious limitations with respect to:

- The flexibility of recommended technology packages, particularly where land quality, water supply, credit availability, the optimum mix of purchased inputs, and individual farm practices vary within a region and from season to season;
- Comprehensive and timely coverage of the target population;
- The ability to gather, continuously, information from farmers to provide a basis for adapting recommendations and meeting farmer needs;
- Adequate collaboration with research in the development of messages and communication strategies aimed at the adoption of recommended technologies;
- Adequate collaboration with providers of inputs and marketing services in the development of messages and communication strategies aimed at promoting the appropriate purchase and application of inputs and the efficient marketing of produce.

Project Description.

The Communication for Technology Transfer in Agriculture Project (CTTA) will develop and demonstrate a more effective communication support system for technology transfer in agriculture. This system will depend on:

- Investigative procedures for studying farmer behavior and motivation related to the transfer of specific technology;
- The development and implementation of effective messages and mass communication strategies focused on the transfer of technology in the context of the problem of variability;

6

- Networking procedures to improve linkages among research, extension, other providers, and the farmer as they relate to the technology transfer process.

While agricultural technology is most appropriate within specific geographical boundaries, often an area the size of a county, the transfer technology developed by this project is to be applicable, with minor adaptation, worldwide. Thus CTTA objectives require that it work with a variety of high and low input agricultural technology in diverse settings. To this end, CTTA will conduct pilot projects at one primary site (FY 85: Honduras) and eight collaborating sites (FY 86: Ecuador, Peru, and Swaziland), estimated at two per region, to support specific technology transfer objectives. The pilot projects will involve the collaboration of national and local research, extension, and provider institutions.

The procedures developed across sites and across regions will stabilize as a methodology that can be introduced at future sites, worldwide. CTTA will institutionalize these procedures in each participating country within existing organizations through in-service training and management decisions to modify on-going operations. Diffusion activities will also be authorized.

Outputs.

This project's impact will be evident in five areas: 1) in the development of effective procedures for providing communication support for technology transfer; 2) in the production performance of the farmers in the pilot sites; 3) in the organizational changes induced in the collaborating institutions; 4) in the diffusion of the communication methodology to additional sites; and 5) in modification of the accepted norms for conducting extension among the international community.

The project's effects will be visible within the eight-year life of project, but the stream of production benefits initiated by this project is expected to continue for many years into the future. The specific outputs required during the life of project include:

1. Pilot activities at one primary site and eight collaborating sites to develop communication support methodology with:

   - developmental procedures pertaining to message and communication strategy development and implementation;

   - networking procedures pertaining to farmer/research/extension/provider linkages.

2. Summative evaluation of each pilot activity.

3. In-service training and institutionalization of the procedures at each site.

4. Significant technology transfer at each site.

5. Diffusion seminars and technical assistance missions, estimated at four per region.

6. Instructional manual and videotape series for AID field officers and development professionals about project procedures.

7. Reports, publications, and papers.

Timing and project duration.

This will be an eight-year project beginning in FY 85 and terminating in FY 92. The project will be organized in two, overlapping phases:

- o Phase I: Development of Communication Procedures;
- o Phase II: Diffusion of the Methodology.

The timing of project activities for each phase is described in Figure 1, p. 57.

Cost

CTTA will require $7,295,000 of S&T funding. An additional $12,138,000 of Mission project funds will be obligated for CTTA activities through the CTTA contract or cooperative agreement.

Implementation Arrangements

A single contract or cooperative agreement will be competitively awarded in FY 85 and managed by S&T/ED in coordination with S&T/RD, S&T/AGR, and involved Mission officers as described in Sections 3.5 and 4.1. If feasible, small cooperative agreements will be made with International Research Centers to sponsor three of the diffusion seminars.

9

Acknowledgements

Numerous AID technical and managerial staff, both AID/W and Mission, have made significant contibutions to the development of this document. Special appreciation is expressed to S&T/RD, K. Swanberg for his assistance in writing the Economic Analysis section and material pertaining to farming systems research; to USAID/Tegucigalpa, S. Wingert and G. Straub for assistance in developing the Honduras section; to USAID/Quito, J. Goodwin, D. McIntyre, J. Beausoleil, and C. Jaramillo and USAID/Lima, D. Bathrick and T. Miller for their support during feasibility site visits.

The secretarial staff of three Missions, particularly Marcella de Rodriguez and Flora Penman of USAID/Tegucigalpa, Tania Aguirre of USAID/Quito, and Ilia Cavero of USAID/Lima and of S&T, particularly J. Ulsaker of S&T/ED and C. Roett, of S&T/PO in interaction with A.I.D.'s worldwide Wang wordprocessing system have saved easily one month of project development time.

The National Science Foundation with the guidance of I. Pikus and assistance of M. Basillovac of NSF and F. O'Quinn of S&T/RUR has played an important supportive role in the development of this project through an S&T/RUR RSSA. An NSF advisory panel chaired by R. Harwood (IADS) has contributed significantly to improving draft versions of the PID and PP (See Annex F). Special thanks are due to the NSF panel subcommittee of J. Axtell (Purdue) and H. Ray (Academy for Educational Development), who accompanied the drafter to assess the feasibility of pilot sites in Honduras, Ecuador, and Peru and contributed significantly to the preparation of these sections, and to the other NSF panel members Robert Hornik (University of Pennsylvania), Sidney Passman (Consultant), and Delane Welsch (University of Minnesota).

Drafter:AMeyer:S&T/ED:235-8850:W#1226R:03-08-85

PROJECT PAPER
COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE (CTTA)
PROJECT 936-5826

1. PROJECT RATIONALE AND DESCRIPTION

1.1 Rationale.

The transfer of technology to small farmers in developing countries depends in part on the flow of information to and from the farmer; how that information is developed and the technology adapted within research and extension systems; and how it is received and utilized by the farmer. A.I.D. is designing the Communication for Technology Transfer in Agriculture Project (CTTA) to apply and further develop what is known about this flow of information to and from the farmer and how to establish communications systems using personal contact with the farmer and mass media strategies more effectively in support of this process.*

Farming systems research has directed increasing attention to solving the problem of technology development and transfer among farmers where land quality, water supply, credit availability, the optimum mix of purchased inputs, and individual farm cropping systems vary significantly within a region and from season to season. CTTA will increase A.I.D.'s ability to transfer technology by developing communication systems which more fully accommodate this variability within local settings. In this sense CTTA will pursue a different orientation from extension systems based predominantly on the unquestioning adoption of predetermined technology packages. Thus while the results of CTTA will have the greatest potential for impact in areas where variability is a major problem, the methods developed by the project will offer alternatives for the improved use of communications to support technology transfer in developing countries worldwide.

In undertaking this effort, CTTA supports one of A.I.D.'s four Food and Agricultural Development policy elements, "to develop human resources and institutional capabilities, especially to generate, adapt and apply improved science and technology for food and agricultural development," which requires, in part,

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* Agricultural communications includes all technologies, methods and skills utilized in transmitting and receiving information for the purpose of developing, transferring and sustaining the use of appropriate technology in agriculture. Agricultural technologies include all devices, commodities and practices aimed at improving agricultural productivity, including biological innovations as well as mechanical, irrigation techniques, pest management procedures, and so forth.

"a more vigorous effort by A.I.D. to support the identification, transfer and adaptation of existing appropriate technologies" (A.I.D. Policy Paper: Food and Agricultural Development: May, 1982: p.2). A.I.D.'s Sector Strategy for Agriculture further underscores the importance of improving "the institutional processes of getting those technologies developed and adopted" (p.4), while A.I.D.'s Policy Determination on Development Communications establishes as a priority "the application of existing communications technologies and media to problems in development . . . in all sectors . . . as integral elements of project design wherever appropriate and cost-effective" (February, 1984: Executive Summary).

1.2 Statement of the Problem.

Many factors in addition to communication are important in the technology development and transfer process. Some factors, such as field staff training, management, and morale, can be influenced by communications. Some factors, such as credit availability and field worker salary levels, can not. While the importance of communications to technology development and transfer in comparison with all other factors is not known precisely, communications is acknowledged to be itself a factor of major importance and the absence of effective communication support to be a major constraint.

Traditional extension systems have attempted to provide communication support for technology development and transfer in agriculture. These systems are recognized to have serious limitations with respect to:

- The flexibility of recommended technology packages, particularly where land quality, water supply, credit availability, the optimum mix of purchased inputs, and individual farm practices vary within a region and from season to season;
- Comprehensive and timely coverage of the target population;
- The ability to gather, continuously, information from farmers to provide a basis for adapting recommendations and meeting farmer needs;
- Adequate collaboration with research in the development of messages and communication strategies aimed at the adoption of recommended technologies;
- Adequate collaboration with providers of inputs and marketing services in the development of messages and communication strategies aimed at promoting the appropriate purchase and application of inputs and the efficient marketing of produce.

From the perspective of the farmer in areas where subsistence itself is often an issue and variability* increases the risk of adopting innovations, extension information about new agricultural practices will properly be treated with caution. Information coming to farmers is often presented as instruction in the application of a fixed "package," inadequately differentiated for the variety of circumstances among farmers in a region. The information is often correctly perceived by the average farmer as relevant to better-off farmers in situations most similar to research station conditions. Experience has taught the farmer caution, because application of the information in less favorable conditions may lead to failure rather than increased productivity and an improved standard of living.

The problem this situation presents for technology transfer is how to accommodate variability in message and communication strategy development to achieve widespread adoption of new technology. CTTA will address simultaneously the problem of variability and the problem of shortfall in reach of traditional extension systems.

From the perspective of research and extension systems, developing and adapting new technology and promoting better use of existing technology requires on-farm trials. As trials are conducted season after season to test for acceptable technologies and their parameters for success under local conditions, the extension system develops and spreads the results throughout the farm communities. Yet traditional farmer contact systems isolate extension agents both from research institutions and from their own supervisors. They provide little opportunity for farmer feedback to reach agricultural research stations and provide few incentives to agents to gather such information. The opportunity and ability of agents to define the need for new and appropriate technology packages is often minimal.

Similarly, providers of inputs and services do not coordinate their activities with extension adequately or provide adequate information to the farmer about the availability and appropriate use of offered inputs and services. Feedback from farmers to these providers is also inadequate to guide changes in the packaging or type of services offered. Thus the problem of communications support to technology development and transfer under variable conditions is compounded by the need to link research, extension, and other provider systems with each other and with the farmer.

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* "Variability" in this document refers to fluctuation within a region and from season to season that pertains to land quality, water supply, credit, and other input availability, the optimum mix of purchased inputs for a given situation, and individual farm practices.

Communication support can serve as a catalyst to introduce needed organizational changes to establish these linkages. To this end, CTTA will develop procedures aimed at improving the effective exchange of information among these systems and the farmer.

1.3 Project Purpose.

The Communication for Technology Transfer in Agriculture Project (CTTA) will develop and demonstrate a more effective communication support system for technology development and transfer in agriculture. This system will depend on:

- o Developmental procedures for studying farmer behavior and motivation related to specific technology and for developing and implementing effective messages and mass communication strategies focused on the transfer of technology in the context of the problem of variability;
- o Networking procedures to improve linkages among research, extension, other providers, and the farmer as they relate to this technology development and transfer process.

These developmental and networking procedures will be designed to remain constant from site to site, while the optimum mix and relative importance of specific communication channels and techniques will vary. While agricultural technology is most appropriate within specific geographical boundaries, often an area the size of a county, the transfer technology developed by this project is to be applicable, with minor adaptation, worldwide. Thus CTTA objectives require that it work with a variety of high and low input agricultural technology in diverse settings. To this end, CTTA will conduct pilot projects at one primary site (FY 85: Honduras) and eight collaborating sites (FY 86: Ecuador, Peru, and Swaziland), estimated at two per A.I.D. region, to support a variety of technology transfer objectives. The pilot projects will involve the collaboration of national and local research, extension, and provider institutions.

The procedures developed across sites and across regions will stabilize as a methodology that can be introduced at future sites, worldwide. CTTA will institutionalize these procedures in each participating country within existing organizations through in-service training and management decisions to modify on-going operations. Diffusion activities will also be authorized.

1.4 Project Plan.

CTTA will collaborate with a Mission project at one primary site, Honduras, and eight collaborating sites following a common plan. Central funding under this project in combination with Mission funding under Mission projects will provide

13

Long-term resident advisors; short-term technical assistance; commodities; evaluation studies; and diffusion activities. CTTA will have two major overlapping phases.

Phase I will develop and stabilize the communication support methodology through its initial development in Honduras, Ecuador, Peru, and Swaziland and through adaptation across regions at five later collaborating sites. The inclusion of Swaziland as an initial site reflects the greater difficulty experienced in designing technology transfer programs in Africa and the importance of the Africa region with its present urgent need to increase food production. It is likely that at least two of the remaining five collaborating sites will be in Africa. Work at the early sites (FY 85-89) will facilitate adaptation of the communication support procedures at later sites (FY 87-91) and will lead to the generalized methodology that can be introduced with minor adaptation at future sites during Phase II diffusion activities (FY 87-92).

Phase II will diffuse the communication support methodology, worldwide, through technical assistance missions; regional seminars; involvement of the international agricultural research centers in the diffusion process; production of an instructional manual and videotape series; and the presentation of results to the international community through reports and publications. Phase II activities will begin in FY 87 and follow the schedule indicated in Figure 1, p. 57.

A project implementation plan will be defined in stages by this document; by proposals in response to the RFP; and by collaboration with host country personnel in the process of developing site-specific plans.

PHASE I: DEVELOPMENT OF COMMUNICATION SUPPORT PROCEDURES.

In each participating country, CTTA will be implemented in one pilot area with existing research and extension systems to introduce agricultural technology which have been developed independently of CTTA resources and are ready for dissemination. The farmer population will be selected to reflect a spectrum of access to roads, markets, and credit and to include, within the norms of the area, both higher and lower resource farmers. The technology chosen as options in the pilot activity will include both high and low input types. The design of each pilot activity, in other words, will provide a range of conditions and options to permit some separation of constraints in communication from other constraints to technology adoption.

In each pilot area, village-level investigation will link research recommendations with analysis of existing farmer behavior, vocabulary, and cultural and economic concepts. This investigation will provide the basis for the development and implementation of messages and a communication strategy to

promote this technology in coordination with a full range of extension and provider activities. These developmental procedures will provide the basis for accommodating local variability within a mass communication strategy, the primary R&D objective of this project.

Researchers, extension workers, other providers, and farmers in the pilot area will collaborate in these developmental procedures and in implementing the communication strategy. This collaboration will provide a systematic opportunity to increase information exchange among research, extension, providers of inputs and services, and the farmer. The development of procedures to establish and maintain this task-oriented networking is the secondary R&D objective of this project.

Each pilot activity will require research and extension units, under guidance from technical assistance funded by the project, to function as a single communication support system. CTTA long-term technical advisors, themselves expert in communication methodology, will coordinate local expertise and short-term technical assistance with their own to insure that four key technical functions are served:

o Technical guidance from behavioral research: program development, monitoring, and modification based on information gathering and exchange among farmers, research-extension staff, and other providers about specific technologies and their related practices, as outlined in the INFORMATION EXCHANGE figure below. "Formative evaluation"* techniques drawn from experience in a variety of applied disciplines, including communication research, development communications*, social marketing*, behavioral psychology, and instructional design, will assist in the development of recommendations and messages for specific technology transfer objectives and in the on-going monitoring and modification of communication strategies.

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*"Formative evaluation" refers to data collection and analysis aimed at guiding program implementation and providing feedback for mid-course corrections and improvement. It is distinguished from "summative evaluation" aimed at assessing program impact and outcomes with a high level of reliability.

"Development communications" is "the application of existing communications technologies and media to problems of development," as defined in the A.I.D. Policy Determination on Development Communications (February, 1984: p. i).

"Social marketing" is the design and implementation of programs calculated to influence the acceptability of socially beneficial ideas and behavior and involving the application of marketing tools (marketing research, product development, pricing, accessiblity, advertising, and promotion). See Annex E, Review of Prior Experience, for a fuller discussion of social marketing and for past examples of development communications and social marketing applications.

These techniques will include in-depth interviews; "focus group" structured discussions; definition and analysis of target audience characteristics, concepts, and vocabulary that pertain to the new technology; "product testing" trials; and direct observation and analysis of relevant practices from behavioral and instructional design perspectives. Some techniques have not yet been applied fully in agricultural technology transfer programs and are expected to provide the basis for greater success in gaining adoption of new technology in this project.

o Technical guidance from agricultural research: the development of recommendations and messages based on the characteristics of available technology and experience from technology tests and on-farm trials.

o Technical guidance from communication research: the development, monitoring, and on-going direction of mass communication strategies integrating media with interpersonal communication and integrating development communication and social marketing approaches with traditional extension activities; the development, monitoring, and on-going direction of improved networking activities.

o Program management: the procurement, coordination and monitoring of the skills, products, and services required in implementing communication strategies and maintaining networking activities; the gradual modification of personnel, job descriptions, and operations aimed at institutionalization of the communication support methodology.

The resident advisor at each pilot site will collaborate with regional and national level staff to facilitate the transfer of successful communication support procedures to regional and national level operations. Resident advisors and key counterpart staff will collaborate across participating countries to sharpen the definition and improve the quality of the developmental and networking procedures as they are adapted to varying technologies and country conditions.

Phase I of CTTA represents the implementation of pilot activities at one primary site, Honduras, where the level of effort for both technical assistance and evaluation will be greatest, and at eight collaborating sites. These pilot activities, taken together, will produce:

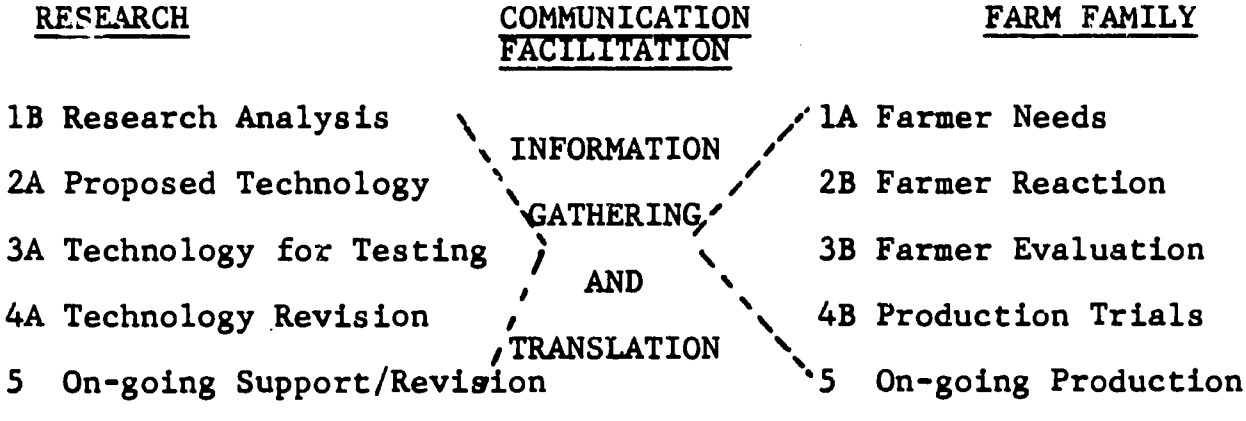
1 Developmental procedures;
2 Networking procedures;
3 In-service training and institutionalization; and
4 Evaluation studies at nine sites.

1 Developmental procedures. These procedures pertain to program development, monitoring, and modification based on information gathering and exchange among farmers, research/extension staff, and other providers about specific technologies to be transferred and their related practices. As noted in the description of "Technical guidance from behavioral research" above, these procedures will incorporate techniques, some of them new to agricultural communications programs, drawn from a variety of disciplines. Their comprehensive and cogent application to agricultural technology transfer objectives is the major innovation of the CTTA project.

At all pilot sites identified to date, there is some prior experience with agricultural training, radio broadcasting, print production, and audio-visual materials development. CTTA will bring a sharp focus on the development and transfer of specific technology to this context of existing, generalized communication support. CTTA developmental procedures will reflect a behavioral, social marketing perspective grafted onto the more traditional procedures related to on-farm trials, the pretesting of audio-visual materials, and the collection of basic socio-cultural data. CTTA will try to "sell" new technology using approaches similar to AID projects that have "sold" Oral Rehydration Therapy and contraceptive devices in the health and population sectors. Some explanation of how this might work in an agricultural context is in order.

The following figure describes stages in the information exchange between research and the farm family aimed at the development and introduction of new technology. The exchange is facilitated by the communication/extension system through information gathering and translation functions. The figure has been adapted from suggestions by the NSF review panel.

STAGES IN THE RESEARCH - FARM FAMILY INFORMATION EXCHANGE
(Stages are numbered consecutively.)



17

The communication support procedures developed under the CTTA project can be understood as instruments for facilitating the research - farm family information exchange process. Information exchange between the farm family and input providers and marketers is also included in the scope of this project, although not explicitly expressed in the figure. Input and service providers may need message development assistance as well. Information about postharvest handling, current and projected prices, the location and timing of product markets, weather, input prices and availability, and information about topical events such as demonstration days and farmer meetings will be incorporated into the overall communication support system.

Stages 1 and 2. In an on-going research-extension system, these stages develop interactively. CTTA developmental procedures will add a strong social science dimension to the information gathering and translation function here. Communication and extension personnel will collaborate with researchers and input providers to plan and carry out relevant information gathering and translation procedures. While it is the purpose of the CTTA project itself to test and further develop these developmental procedures during the life of project, initial experimentation will include:

- Investigation of existing village-level concepts, vocabulary, and practices pertaining to the proposed technology which rely on techniques noted above such as in-depth interviews and focus group discussions with farmers and direct observation of behavior both on farms and in the more structured circumstance of on-farm trials.

- The transformation of behavioral data into a concept for approaching farmers and for designing messages based on:
  - the importance of a given observed behavior to introducing change;
  - the complexity and cost of performing the new behavior;
  - the proximity of the new behavior to existing behavior;
  - the availability of visible reinforcement for the new behavior; and
  - cultural concepts and vocabulary which can impede or assist adoption.

- "Product testing" trials to observe farmer reactions and skills in handling the new technology and its accompanying input and skill requirements. Packaging and pricing strategies will be taken into account here as appropriate.

Stages 3 and 4. The testing of new technology will benefit from increased collaboration between research and extension through activities that develop educational messages, materials, and mass communication strategies in parallel to the technology development and early diffusion process. Procedures useful to these stages include:

18

- Testing messages and prototype media products (e.g. radio spots, flyers, posters, flip charts for training, etc.) with farmers and their modification according to farmer reaction.

- Training field trials to increase understanding through observation of what actually happens in training sessions with the use of the newly developed approaches and materials.

Stage 5. Just as the agricultural technology itself needs on-going adjustment, there must be on-going monitoring and adjustment of the transfer process. Thus the stages of information gathering described here will not be a one-time but rather a continuing activity. Specific educational components will also be monitored such as radio station compliance with broadcasting agreements and the coverage of print distribution and training/demonstration systems. Spot checks or informal surveys will be made of farm family reactions to various media and training inputs, the accuracy of learning and quality of performance, and new problems or questions that existing materials have not addressed adequately. Mid-course corrections in any given communication strategy will be made based on these monitoring procedures.

All of the information gathering and translation procedures that accompany the technology development and transfer process require highly focused collaboration among all key actors. It is this task-oriented collaboration that will provide the basis for improved networking procedures, the second major output of Phase I of the CTTA project.

2 Networking procedures. Procedures will be developed to improve information exchange among researchers, extension agents, providers, and farmers. The key to CTTA innovation here will be its focus on key technology and its pursuit of behavioral specificity in the course of establishing the developmental procedures described above.

As suggested already, networking activities will not be instituted simply to become part of formal organizational protocol. Such linkages will not last or be effective in technology transfer. CTTA will forge on-going, task-oriented relationships that are required in the performance of developmental procedures and in the implementation of technology transfer activities. These relationships will be monitored and modified in terms of the quality of their performance and the usefulness of their output.

Outputs 1 and 2, developmental and networking procedures, will require the exchange of materials and visits among resident advisors, key counterpart staff, and project home office advisors across Phase I sites to benefit from differences in technology and local situations in developing these procedures. An annual workshop with participants from sites active at the time will facilitate this exchange.

3 In-service training and institutionalization. The procedures developed with CTTA assistance will not be successful unless they can be practiced routinely by local personnel as part of their institutional roles. CTTA resident advisors and short-term TA will provide in-service training in communication to the key host country personnel working with them in the development of project procedures. Out of country degree training is not envisioned, unless by exception, because the project will be improving the knowledge and skills of practitioners already in place through experience with methods and procedures being developed on-site.

As successful procedures evolve, they will become part of office routine at the local level. The recommendations of the resident advisor and visits by regional and national level professional staff will lead to administrative decisions to adopt the methodology outside of the pilot area. The resident advisor will assist in this process.

4 Evaluation studies at nine sites. Summative evaluation will take place at each pilot site, in addition to the formative evaluation discussed above. Honduras will receive the greatest level of evaluation effort, so that one site is examined in greater detail and with more safeguards for reliability than the others.

It should be understood that this summative evaluation is not the evaluation required by the AID management and monitoring plan discussed below in Section 4.4. The purpose of this summative evaluation is to assess the impact of the methodology developed under the project on technology transfer. To do this, the evaluation will examine the relationship between the technology transfer interventions (including their cost) at the pilot sites, understood as independent variables, on a number of dependent, "outcome" variables, such as knowledge, behavior, and yield. Farm level data collection will be such as to permit disaggregation by age, sex, and family status. The evaluation will assess the extent to which the interventions produced change among whom and at what cost. Correlational analysis of survey data, unobtrusive measures, and case study process data will provide a basis for weighting the importance of various intervention elements, such as radio, farmer meetings, and so forth.

20

The evaluation activity will demand a significant commitment of resources. There are many questions to answer and a long period of change to observe. The evaluation, it is expected, will provide strong summary evidence about the efficacy of the intervention in general. Project costs (and costs projected for non-experimental versions of such a project) will be compared to observed and projected changes in yield and profit.

Comparisons with areas not operating under a modified information system, but under comparable resource availability constraints, will be incorporated. Evidence about whether exposure to information and information gathering activity on the part of farmers played an enhanced role in the farm production function will be collected. The evaluation will also examine information flows within the pilot region and between the pilot region and central offices to see to what extent this has been improved.

It is not assumed that the communication intervention itself will be able to effect changes in yield and profit. The communication intervention is expected to directly influence program participation, knowledge and behavior. These outcomes are expected to change significantly among the pilot area population in comparison with controls. But it is not expected that the communication intervention will provide inputs, set prices, or market products, although it may improve the system's ability to manipulate these factors more favorably and improve the farmer's ability to interact with them. The evaluation as it continues over several years may provide evidence of how program participation and changes in knowledge and behavior acted in concert with these other factors to influence yield and profit.

However, if this project is to be generalized elsewhere, the evaluation will look beyond outcome results. Future implementors need to know not only whether a set of procedures worked but how they worked. In part, this will require specific evidence of how each of the information flows were changed -- from farmers to institutions, among institutions, and from institutions to farmers -- and what obstacles there were in achieving such changes. It will require narrative evidence about what demands are placed on existing budgets. The story of what was least difficult to do and what most difficult, which elements of the project design were crucial to its outcomes and which were not, may be of no less moment to future implementors than are data about overall effectiveness.

An evaluation design adequate to this task -- which tracks the relationship of intervention to outcome through the intervening variables of exposure to information, increased knowledge and behavior change -- has been implemented in Honduras under the AID Mass Media and Health Practices Project. A report of this

design and first-year findings is attached (Annex D). The budget for the evaluation will be based on this kind of evaluation design, although specifics of the design will change through the competitive bidding process and the development of final work plans in-country.

Specifically, in Honduras the evaluation will begin at approximately the same time as the intervention, to pretest evaluation instruments and collect baseline data, and continue for four years. Large n (n = 750 should be used for budgeting purposes), random sample household survey methodology will be required as well as smaller, more process oriented studies on smaller n samples. The design will include a "control" sample outside the pilot area and an "after-only" sample within the pilot area. Credit, sales and marketing data will also be collected from public sources.

Dependent variables will include those pertaining to the quality and coverage of the intervention as well as to knowledge and behavior. Yield and income data will also be examined. The relative importance of intervention elements will be determined from correlational analysis, unobtrusive indicators, case study process data, and examination of unevenness in coverage across segments of the population. Intervention costs will be closely monitored.

In other collaborating countries, case study methodology in conjunction with more modest survey data collection will be used. A modified version of the Honduras design will be implemented to confirm similarities and differences in major outcomes across sites. Section 1.6, Project Inputs, and Section 2.2, Summary Budget Tables, provide information about the magnitude of these efforts.

PILOT SITE DESCRIPTIONS

Descriptions of the pilot site plan for Honduras, Ecuador, Peru and Swaziland follow. Final implementation plans will be developed after the award of contract, in conjunction with USAID and host country personnel. Since the Honduras site begins in FY 85, plans for the pilot site at Danli are most detailed, and a draft PIO/T from USAID/Tegucigalpa is included as Annex C.

The following resources are required for each pilot site, exclusive of Honduras, over 3.5 years and will be obtained from shared S&T and Mission funding:

- -- Resident communications advisor: 3.5 years;
- -- Short-term TA in areas of expertise not well represented in country: .5 year;
- -- Funding for participation in CTTA regional meetings and international conferences (Estimated at $40,000 per site);

22

- -- Funding for a case study evaluation (Estimated at $60,000 per site);
- -- Operational expenses and equipment (Estimated at $150,000 per site);
- -- Travel (Estimated at $60,000 per site);
- -- A share of home office support (Estimated at $105,000 per site).

Equipment provided as part of the core activity of this project will be minimal: this is not a hardware infrastructure development project. Participating sites will already have met basic hardware requirements for involvement in a communications project of this nature. The project will procure vehicles and low cost equipment such as tape recorders and microphones to judiciously augment present capacities to conduct formative evaluation trials among farmers and to produce quality media products. A.I.D. Missions may also wish to fund some additional hardware procurement under this project.

Resources are included for one international meeting each year of participating country, contractor and host country staff. Funding for occasional site visits are also envisioned. This international exchange of experience in development of the CTTA methodology is expected to contribute significantly to its quality and cross-national applicability.

This resource list will serve as a frame of reference to be negotiated on a country by country basis. For example, the inputs negotiated for Honduras are substantially different due to the additional involvement of the Honduras Research Foundation and the nature of the evaluation being conducted there. Later sites will require .5 year less of a resident advisor on the premise that these sites are receiving the benefit of experience gained at the earlier sites. The illustrative budget that follows indicates how these expenses would be incurred over a 3.5 year period beginning in mid FY 86.

ILLUSTRATIVE BUDGET FOR ONE LAC REGION SITE OVER 3.5 YRS
($1 = 1000)

Item*	FY 86	87	88	89	
Resident advisor	60	120	120	120	
Short-term TA	20	20	20	--	
Field office operations	10	40	40	30	
Equipment	30	--	--	--	
Evaluation case study **	--	20	20	20	
One internat. meeting	10	10	10	10	
Travel	15	20	15	10	
Home office share	15	30	30	30	
Total	180	260	255	220	
10% Contingency	18	26	25	22	
TOTAL	178	286	280	242	986
S&T share	89	143	140	121	493
Mission share	89	143	140	121	493

* All estimates are "loaded" to include overhead, etc.
** A fixed sum estimate is pro-rated across years.

24

HONDURAS

Implementation of the Communication for Technology Transfer in Agriculture Project (CTTA) will begin in FY 85 in Honduras, in conjunction with USAID/Tegucigalpa Project No. 522-0249 (Honduras Agricultural Research Project). Implementation of CTTA and the communication component of the Mission project will be undertaken simultaneously and in close collaboration. This activity has now been requested by Ing. Miguel A. Bonillas R., Minister of Natural Resources, Mr. G.C. Millensted, Interim Executive Director of the Honduras Agricultural Research Foundation, and Mr. Anthony J. Cauterucci, USAID/Tegucigalpa Mission Director (see Annex B).

I. Background

Two recent developments in Honduras have provided an institutional and technological base for CTTA: 1) establishment of the Honduras Agricultural Research Foundation (FHIA) under the USAID/Tegucigalpa Agricultural Research Project; and 2) reorganization of the Agricultural Communication Unit (UCA) of the Honduran Ministry of Natural Resources (MRN).

A. Honduras Agricultural Research Foundation (FHIA)

The Honduras Agricultural Research Foundation (FHIA) at La Lima, Cortez, near San Pedro Sula, was established in late 1984 with responsibility for development of technology specifically adapted to Honduran conditions. FHIA will maintain linkages with the major international agricultural research centers in addition to developing its own scientific competency. The FY84 Honduras Agricultural Research Project (522-0249) provides significant support to FHIA over a ten year period.

FHIA is organized as a private institution governed by a Board of Directors on which are represented the Government of Honduras (especially MRN), the private sector, the Federation of Export Crops, and major farmer organizations (such as service cooperatives, campesino organizations and COHEP, a committee of private sector farmers).

The FHIA purpose is to expand and improve the Honduran agricultural research system to make it more responsive to the technological needs of farmers. To achieve this purpose, Foundation activities must be developed within the larger national technology development and transfer context, closely linked to MRN research and extension programs and activities.

Operationally, FHIA is organized into two major divisions, Research and Communication/Development as shown in Figure A.1. The Communication/Development Division (DCD) will have specific responsibility for collaborating with MRN in transferring directly to farmers the new and/or improved technology generated by Research. The DCD, in collaboration with MNR, will also assist in meeting the information needs of agricultural research and education institutions such the MRN Research Division and National Extension Service, and private sector organizations (producer, processing, trade, credit, PVOs, etc.).

Specific CTTA-related functions of the DCD include:

- communication planning;
- investigation of farmer beliefs and practices related to technology utilization;
- development, pretesting, production, dissemination, and evaluation of materials in various media;
- coordination and management of the communication network; and
- communication-related training.

USAID/Tegucigalpa funding for the FHIA Communication and Development Division under the Honduras Agricultural Research Project will be obligated through the contract awarded under the CTTA Project, and represents a significant Mission contribution to CTTA activities. It will include long and short term technical assistance, equipment required to make the DCD functional, vehicles, agricultural library acquisitions, and operational support for project-funded technicians and home office staff.

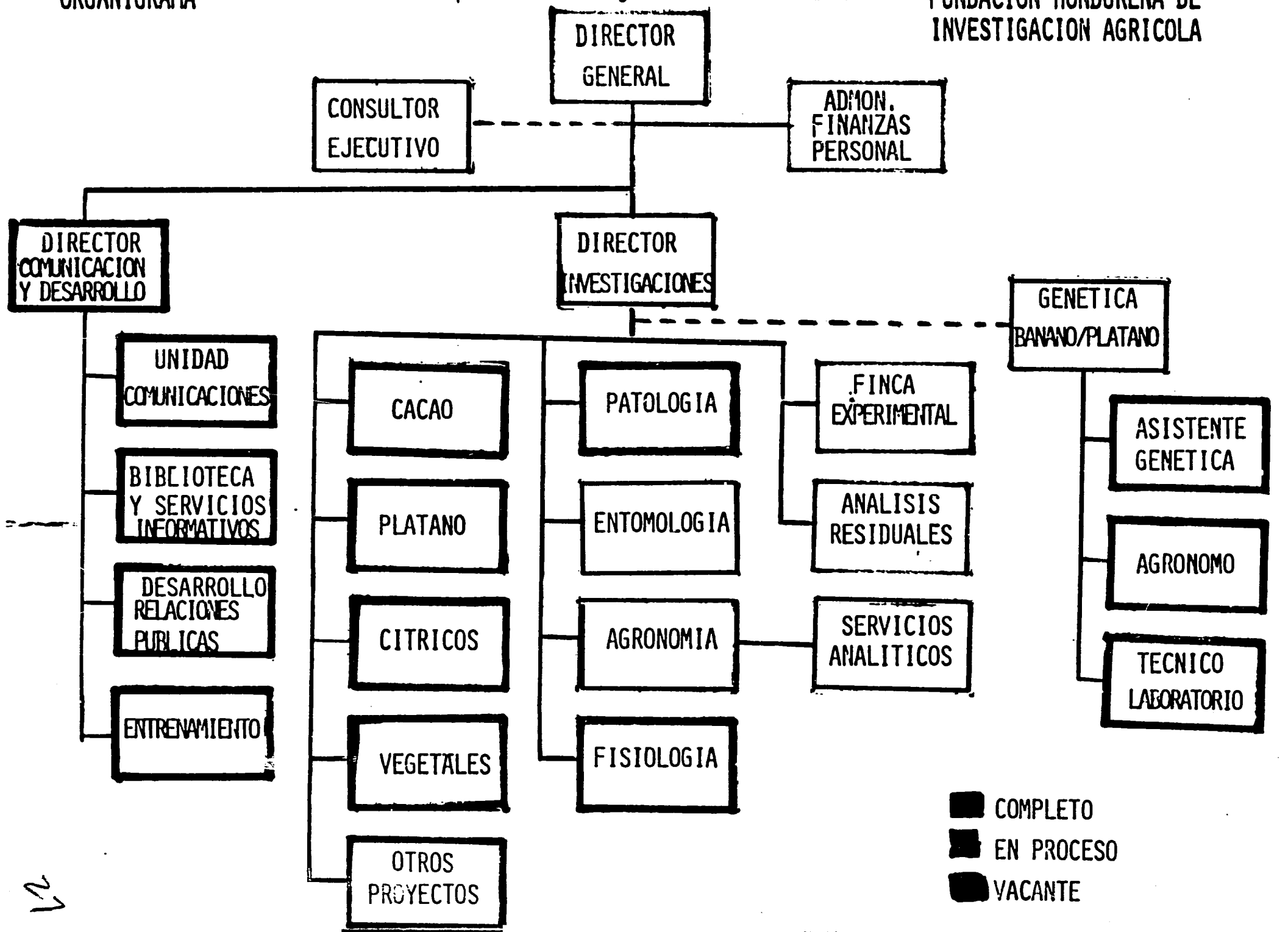
B. Directorate of Agriculture (MRN)

The Honduran Ministry of Natural Resources Directorate of Agriculture is presently organized into three divisions, all of which will be important to CTTA.

The Agriculture Directorate's Research division will continue to function as an integral part of the Honduran research system maintaining close linkages with the FHIA, and with major focus on basic foodgrain research. Within the Directorate, the "enlace tecnologico" whereby research and extension collaborate in conducting field trials on farmers' field will be an important component of the overall CTTA communication program. The Director of research fully endorses CTTA.

The National Extension Service, likewise a division within the Agriculture Directorate, is the principal technology transfer agency of the MRN. Extension performance has been and continues to be poor, as assessed by both the MRN and USAID/Tegucigalpa. There is strong support within the

Figure A 1. Relationship between research and communication/ development in FHIA organizational structure.



Ministry, led by the Minister himself, for the more effective use of communications as a critical step in improving extension performance as a technology transfer agent. The MRN strongly endorses the selection of Honduras as the primary CTTA site.

The MRN Agricultural Communication Unit (UCA) formerly in Extension, has undergone two reorganizations recently, and is now a unit of the Agriculture Directorate with responsibility for providing communication support to both the Extension and Research Divisions. Organizationally, the UCA is now in a strategic position to serve as the institutional base for CTTA in Honduras, and is ready for significant technical growth along the lines proposed by this project. Operationally, however, it is at present seriously understaffed and underbudgeted, and has virtually no capacity to produce materials in any media other than print.

The present UCA head has training and experience in agricultural communication as well as experience in administration. He has a strong commitment to agricultural communication, and can provide effective leadership to CTTA at the national level with assistance and counsel of the proposed long term resident advisor. Other present UCA staff include an assistant unit head with prior experience in a regional communication unit, two audiovisual technicians, and an artist.

The unit's equipment, much of which is in poor condition, consists of a few projectors and one portable screen, two cameras, three portable tape recorders, three typewriters, and one graphic arts setup. An exception to the generally poor staffing and equipment situation is the print shop which is reasonably well-staffed and equipped to produce a wide range of printed materials.

The MRN plans to strengthen the UCA through increasing its staff complement and upward adjustment of its operational budget. Completion this year of a new building will alleviate what is at present a serious space situation. Some equipment required for production in non-print media will be provided by CTTA.

II. Pilot Region

The Ministry of Natural Resources has been decentralized to a significant degree through establishment of seven regional offices which collectively cover most major agricultural areas of the country. Research, Extension, and Communication Sections are found in each regional office, making feasible the selection of a discrete region with the institutional organization needed for a CTTA pilot project.

A. Pilot Region Selection

CTTA field activities will be undertaken in one MRN region for purposes of the pilot project. The Oriente Region with regional headquarters at Danli has been selected as the CTTA pilot project site in Honduras, based on the following criteria:

1. Location: The pilot region should not be located in immediate proximity to either Tegucigalpa or FHIA to avoid "contamination" of the project through excessive intervention by central MRN or FHIA staff in activities for which regional pilot project staff should have responsibility. The pilot region should, however, be relatively accessible from the capital since frequent travel between Tegucigalpa and the pilot region will be required. Danli, located about 100 km. east of Tegucigalpa on a good paved highway, meets this criteria.

2. Agricultural Technology: There must be appropriate new or improved technology adapted to the region that is available but not yet widely used by the farmers. This requirement is met in the Danli region as discussed in Section III below.

3. Staff Leadership and Commitment: Successful implementation of the CTTA pilot project will require imaginative leadership and strong staff commitment at the regional level. The Danli regional director is well-qualified, and keenly aware of the need to strengthen the role of communication in his region's technology transfer program. He and his staff have expressed high interest in the CTTA pilot project, and their willingness to participate in it actively and fully as appropriate.

4. Communication Capability: A significant communication support capability at the regional level is a basic requirement for the CTTA pilot project. Although communication units have been established in all MRN regions, staffing, facilities and support vary greatly. At Danli, the senior communication unit staff member is well-trained and sensitive to the need for a fuller involvement of his unit in programs of the regional office, and a rudimentary communication capability already exists. This situation is discussed more fully in Section II B below.

A member of other factors also contributed to the selection of Danli as the CTTA pilot project site. The "Escuela Agricola Panamericana", a long established and highly esteemed agricultural school which serves the Central American region, is located at Zamarano on the Tegucigalpa-Danli highway about 70 km. from Danli. This school represents a resource of potentially great value to CTTA - a source of new technologies and improved seeds (see Section III below), training facilities and expertise, interviewers for project studies, etc.

The Danli communication unit has had previous experience in recruiting, training and utilizing "rural correspondents" as sources of information and interviews for agricultural radio programs. Some of those correspondents are still active in the program.

A reasonably wide range of variability in agriculture and farmers exists between and among areas within the region. Also, both low and high input agricultural technologies are available for the region. Such variability is desirable from the standpoint of project evaluation (see Section IX).

B. Regional-Level Resources

From the CTTA standpoint, the most relevant resources at the regional level are those related to research, extension and communication. As discussed more fully in Section III, there are a small MRN research staff and an experiment farm in the region, and one of the national MRN research projects is headquartered in the Danli region.

In extension, the regional coordinator and assistant coordinator are headquartered at Danli. Twenty-four local extension offices manned by a total of 34 "extensionistas" and 21 "promotores" are distributed among 13 development "agencies" in the region. There is no extension work at present in many rural communities.

It is not possible to make an exact estimate of the proportion of the rural families reached by extension as boundaries of extension and census reporting areas do not coincide. Of an estimated 2,600 rural families in the Jamastran Valley, however, extension expects to reach about 800 or approximately 30 percent. The extension coordinator considers that to be reasonably typical of the areas in which extension work is being carried out.

Each local extensionista is expected to work with at least 40 households on agricultural subjects, and each promotor with 40 households on a variety of subjects such as home economics, poultry, swine and gardens.

To summarize the extension situation, present extension staff and coverage are sufficient to provide the necessary "critical mass" of local extension effort desirable for a CTTA pilot project. Many areas presently receive no extension assistance, however, and less than half of the rural families in areas of present extension activity are reached. Technical backstopping and training of extension staff will require extensive collaboration with research staff.

The Danli regional communication unit is presently staffed with three people, one of whom had been in position less than a month at the time of the PP Development Team's visit. The head of the unit has had training in both agriculture and communication. With the anticipated transfer of one experienced person back into the unit to replace one of the present staff, and addition of one new staffer, the minimum regional communication personnel requirements of CTTA will have been met.

At present, the communication unit has very little equipment other than some drafting materials and a portable tape recorder. However, the MRN has agreed to transfer new audio equipment adequate for equipping an audio recording studio to Danli from another region where it has never been used. This equipment, combined with that to be provided by CTTA, will provide the equipment capability needed for the CTTA program.

Another serious constraint to development of the Danli communication unit has been lack of space. Two smaller existing buildings near the headquarters building will be assigned to the communication unit upon completion of new construction by May 1985. The new space will be adequate for the entire communication unit.

At least three radio stations have studios in Danli. Although the area reached by two is rather limited, one can be received over virtually the entire region. Air time can be purchased by the MRN at all of these stations. At present,URCA staff go to the station and do most programs live. A few are recorded at the radio station for transmission later in the day.

C. FHIA - MRN - Pilot Region Linkages

FHIA and the MRN are expected develop linkages of various types relevant to their various interacting, overlapping activities. Those that impact on technology transfer or are at least partially contingent upon participation in a viable communication network are of relevance to CTTA.

The project will assist in developing the core communication linkages illustrated in Figure A 2, in which the FHIA, DCD, central UCA and Danli regional UCA (URCA) are the key activating components. The FHIA and MRN communication units will function in coordination, with joint operations in conjunction with the Danli URCA on pilot activities. These core linkages will be utilized to ensure an uninterrupted two-way flow of information from the institutions to the field and vice versa. Particular attention will be given by CTTA to the regular collection and transmission of reliable feedback information from the farmers to research, extension, government and the agro-support sector (public and private).

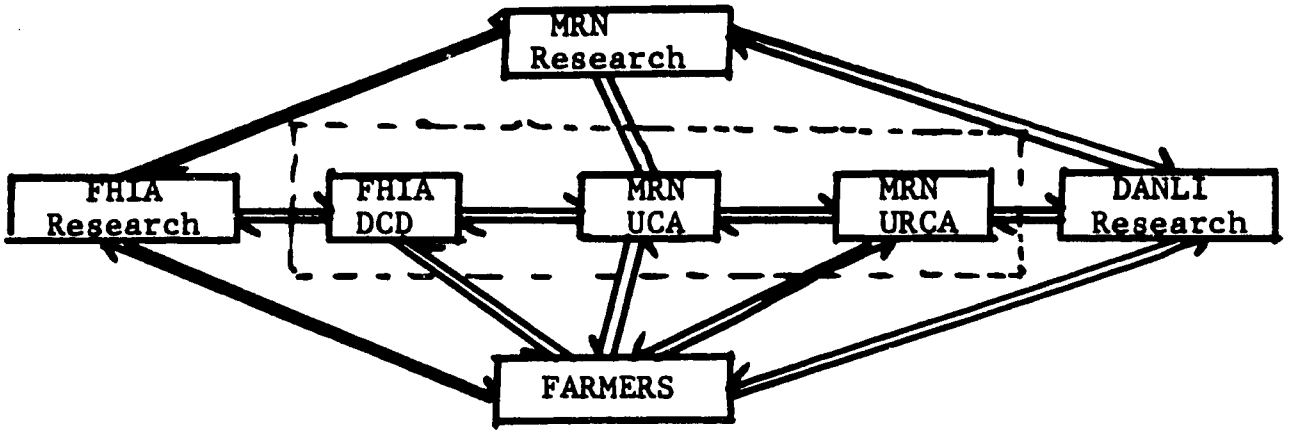


Figure A 2. Core FHIA-MRN-Pilot Region communications linkage system.

The "enlace tecnologico" or "technical linkage" program, which is now MRN policy, will be continued and further developed by CTTA. Under this program, research and extension staff collaborate in conducting field trials. The concept will be enlarged to include more joint research-extension planning and implementation, and evaluation and dissemination of results obtained. A similar program will be initiated between FHIA and the Danli extension staff.

Such coordinated and/or joint activities carried out in the pilot region over a several year period will provide the basis for establishing long term institutional linkages.

III. Technology Transfer Objectives

Significant agricultural technology transfer obviously can occur only when and where appropriate adapted technology is available for farmers to try and adopt. A continuing supply of such technology is therefore an absolute requirement for the feasibility of a project such as CTTA. Furthermore, it is highly desirable to include both low and high input technology in a CTTA pilot project strategy.

In-depth descussions between NSF advisors to this project and key Honduran researchers at FHIA, the MRN in Tegucigalpa, the regional station in Danli, and the Pan American Agricultural School at Zamarano, have revealed that a substantial body of appropriate improved technology (both low and high input) is available for dissemination in Danli, and that this situation can be expected to improve in the future. The current Honduran research situation and several examples of such technologies are discussed briefly below; the "available technology" situation is then summarized in Table H.

The agricultural technology available in Honduras is a result of the MRN research program working closely and collaboratively with CIMMYT and ICTA on Maize, CIAT and CATIE on Bean, CIP on Potatoes, and INTSORMIL on Sorghum. FHIA will contribute significantly to the agricultural research effort in potential export crops and basic grains in the near future. Some interesting and useful adaptive research is being conducted by PVO's (i.e. World Neighbors) and the private sector (i.e. Pan American Agricultural School at Zamarano).

The research directors in Honduras for the MRN and FHIA are both strongly supportive of the need for better communications in agricultural research. They have noted the lack of diffusion of agricultural technology developed by their research programs. Several examples of underutilized existing and new technology which will benefit from the CTTA program include the following:

A. Danli Region

Minimum Contour Plowing for Hillside Maize Production

Approximately 80-90 percent of Honduran agriculture is hillside agriculture. Soil erosion losses are great and production is low. An interesting and useful technology to cope with these problems has been developed by José Elias Sanchez with World Neighbors support. The technology involves use of a tine plow fashioned from discarded automobile springs. A single furrow of 12" width and 10" depth is plowed on the contour of hillsides of up to 30 percent slope. Rows are 1 meter apart. The term minimum plowing is used to distinguish the practice from minimum tillage which connotes use of chemical herbicides which are not used in minimum contour plowing.

The technology also involves use of manure and crop residues in the bottom of the furrow over several years time. Chemical fertilizers are used at low rates starting at 1/2 oz per linear meter of row the first year and decreasing to 1/4 and 1/8 oz in years 2 and 3 followed by only organic fertilizers in subsequent years. Maize seeds are planted at a rate of 6-7 seeds per linear meter.

Soil erosion is reduced because of the "sod" between the 1 meter rows and because of the "trench" impoundment of sediments from runoff water. Production results have been excellent according to several independent sources. Yield increases range from 40-160 percent albeit from initially low base yield levels.

The MRN research program is attempting to extend this technology to other regions of the country and a Watershed Management Team headed by Carlos Rivas is beginning to utilize this practice in a new Danli initiative.

Bean Slug Control (Vaginulus Plebeius)

Veronicelled Slugs as pests of common beans in Central America have been devastating since their introduction in 1967. The most plausible hypothesis suggests that the introduced species Vaginulus plebeius has superimposed itself on the range of previously established, largely innocuous species of the same and other families.

Effective control was first obtained using the insecticide "citralene" but recent evidence from CATIE on toxic residues on beans sprayed with "citraline" has led to "discontinued" (hopefully) use of this control measure. Several bait/trap systems using an ortho insecticide in combination with a slug attractant have been developed and are currently in use. The problem is so severe in Danli that farmers generally do not plant beans unless the bait/trap system is available, even though Danli is one of the two main bean production region in Honduras.

TECHNOLOGY TRANSFER

TABLE H

HONDURAS - DANLI REGION

* TECHNOLOGY DESCRIPTION	EXIST-ING	NEW	% YIELD GAIN	INPUT (HIGH/MOD/LOW	** PRACTICE REQUIRING CHANGE	*** LEVEL OF DIFFICULTY
Begins 1985-86						
Minimum Contour Plowing	X		40	L	Tillage systems Planting Density Fertilizer Practice Animal Traction	2
Bean Slug Control	X		50	M	Insect Control	3
Production Practices for Maize and Beans (Jamastran Valley)	X		30	H	Planting Density Fertilizer Practices Post Harvest/Storage Marketing	5
Begins 1986-87						
Red Bean Production	X	X	40	M	Varieties Planting Density Fertilizer Practices Post Harvest/Storage Marketing	3
Citrus Planting on Small Farms	X	X	N/A	L	Insect Control Credit	4
Begins 1987-90						
Hybrid Maize Production		X	30	H	Varieties Planting Density Fertilizer Practice Seed Industry Post Harvest/Storage Marketing Credit	6
High Lysine Maize Production		X	N/A	L	Varieties Marketing	3
Black Bean Production for Export		X	25	M	Varieties Marketing	9

* The above list of technologies is not meant to be an exhaustive list but essentially to provide examples of underutilized and new technology which can be verified from existing research data.

** Target audience is always considered to be both the farmer population and change agents, public and private sector. Existing technology is available in an area but is underutilized. New technology is in an introductory phase of adoption in an area.

*** 10 = most difficult

TECHNOLOGY TRANSFER

TABLE H

HONDURAS - FHIA

* TECHNOLOGY DESCRIPTION	EXIST-ING	NEW	% YIELD GAIN	INPUT (HIGH/MOD/LOW	** PRACTICE REQUIRING CHANGE	*** LEVEL OF DIFFICULTY
Citrus Production		X	N/A	M	Varieties Pest Management Cultural Practices Marketing	3
Cabbage Production (Siguatepeque)		X	100	M	Fertilizer Management Soil Analysis	2
Vegetable Production (Onions, carrots, lettuce, broccoli)	X	X	N/A	M	Varieties Pest Management Marketing	3
Basic Grains Production	X	X	N/A	H M L	Varieties Crop Management Pest Management Fertilizers	3

* The above list of technologies is not meant to be an exhaustive list but essentially to provide examples of underutilized and new technology which can be verified from existing research data.

** Target audience is always considered to be both the farmer population and change agents, public and private sector. Existing technology is available in an area but is underutilized. New technology is in an introductory phase of adoption in an area.

*** 10 = most difficult

The bait/trap materials are available in prepackaged form from the Ministry but are expensive for a low cash value crop such as beans. An added complication is that the treatment must be repeated after each rainfall and beans are grown during the rainy season (Sept.-Dec.). Agricultural education is badly needed on use of lower cost formulations being recommended, monitoring of slug populations to determine when economic pest thresholds are present, and pesticide safety.

Production Practices for Maize and Beans (Jamastran Valley)

The MRN research program has developed extensive recommendations for fertilizer, insecticide and herbicide use on various soil types in the Danli region. Difficulty in diffusion of this information has been encountered because of lack of appropriate extension efforts.

Red Bean Production

A strong preference is expressed in Honduras for red beans similar in color to the low yielding, disease susceptable commonly grown bean variety Zamarano. The marketing system strongly reinforces this color preference by refusing to buy beans at government prices (high relative to local market) which vary only slightly in shades or intensity of red color. A new high yielding, disease resistant red bean variety Acacias-4 has recently failed to gain farmer acceptance because the bean color was "opaque red" which was distinguishable from Zamarano red (a large bean research grant from Sweden was recently withdrawn because the government refused to modify the bean marketing system).

MRN plant breeders have now selected 2 or 3 acceptable color red bean varieties with yields at least 50 percent greater than Zamarano and good resistance to viral, bacterial and fungal (rust) diseases (RAB 29, RAB 90, RAO 21). These varieties, screened from 300 CIAT red bean introductions, will be in Farmer Trials during 1985 for final evaluation.

Citrus/Avocado Planting on Small Farm

The MRN has initiated a program of introducing small citrus (and perhaps avocado) plantings near homes on small farms in Danli. Typically these homes are surrounded by small banana and sugar cane plantings which would be supplemented by citrus trees to improve nutrient availability to small farm families. The Jutiapa station in Danli is producing nursery stock for transplantation.

Information is needed by researchers and growers from FHIA on cultural practices/management techniques for citrus which should provide a useful link between Danli and FHIA communications and research programs.

Improved Maize Cultivars Including Hybrids

Two new maize hybrids (H-27 and H-83) and also several improved synthetic maize varieties have been developed by the MRN/CIMMYT program. Seed of the double cross white hybrid H-27 is being produced at the Pan American Agricultural School at Zamarano for local sale and distribution. Yield advantages of 1000 Kg/Ha have been verified with acceptable food grain quality.

MRN data on relative maize yields indicate 80 quintals/Ha for local variety, 110 quintals/Ha for improved synthetics and 150 quintals/Ha for hybrids. The CTTA program is needed to educate farmers and change agents on the appropriate use of maize hybrid and synthetic varieties in Danli.

High Lysine Maize Production

The MRN/CIMMYT/Guatemala hard endosperm high lysine maize variety NUTRIDA is producing good yields in the Danli region. The only negative noted was the lack of a husk which completely encloses the tip of the ear to prevent insect invasion, and selection is in progess to alleviate this shortcoming. The MRN director of research expects release of an acceptable high lysine maize synthetic within 2-3 years.

Black Bean Production for Export

Several MRN black bean varieties are available in the Danli region if appropriate markets can be developed. Yields and disease resistance are superior to the best improved red bean varieties. An export trade agreement with Venezuela during the 1973-74 oil crisis, however, fell through and farmers will be reluctant to explore this potential again without careful market development research.

Other Improved Agricultural Technologies Available

The MRN research director is confident that new technologies in animal traction techniques, new methods for raising irrigation water, and new forage grass technology merit extension efforts in the Danli region but time did not permit adquate exploration of the details.

B. FHIA Research Program

Some exciting research initiatives are being developed by FHIA in citrus production, vegetable production including tomatoes and cabbages, and several interesting problems in nutrient imbalance resulting from past overuse of incorrect fertilizer formulations (High Potassium antagonism of Magnesium

utilization). Suffice to say the FHIA research program will be on-stream with useful utilizable research information in 1-3 years.

IV. Other Collaborating Institutions

More than a dozen institutions that impact directly or indirectly on technology transfer have already been cited, not including the FHIA DCD and MRN UCA and URCA that form the core of the communication linkage system. The list includes: national, regional and international agricultural research institutions and programs; the Honduran National Extension Service; and private sector organizations such as the Pan American Agricultural School at Zamarano, World Neighbors, and radio stations.

Not all of the above will necessarily be involved directly in the CTTA pilot project. All are important to the agricultural technology development and transfer process, however, and can contribute to the project through participating in technology development, assisting in dissemination of information to farmers and rural families, and/or providing feedback information from the field. All need regular feedback from the field in order to make their contributions relevant and most effective.

Collaboration with the institutions, organizations and agencies that comprise the agro-support sector will also be critical to CTTA pilot project success. These will include input suppliers, marketing and credit institutions such as IHMA (marketing) and BANADESA (credit), and other private and public sector entities that provide farmers with the goods and services required for producing and marketing their crops and livestock.

Producer associations, campesino organizations, agricultural education institutions, cooperatives, private voluntary organizations, and other government and private programs in the agricultural sector can also contribute significantly, provided they are in effective communication with CTTA. Collaboration with other sectors such as health and education can also be mutually beneficial.

The Mission-funded resident advisor to the FHIA DCD and the centrally-funded resident advisor to the MRN UCA and URCA will assist in the development and management of strategies to ensure the systematic flow of relevant information to, from and among all institutions and organizations such as those discussed above.

Feedback from farmers and local communities will constitute a major component of such information flow. In other words, the resident advisors will assist in development and management of a comprehensive agricultural communication network.

V. Technical Functions

Although extensive technical assistance will be provided through a Contractor, the human resources required for key technical functions related to development of the communications system must be provided in large part by Honduras.

A. Formative evaluation

This function includes information gathering and exchange among farmers, research-extension staff and other providers to assist in the development of recommendations and messages related to specific technologies as discussed earlier in the Project Paper. The FHIA and MRN communication units will have professional staff with specific responsibility for communication-related investigatons. It is likely that such staff, particularly at the regional level, will have had only minimal prior training and experience in the types of formative evaluation required by CTTA. The resident advisors and short-term technical assistance will therefore provide training and guidance to upgrade local staff competence (and confidence) in planning, conducting and assessing results of formative evaluation activities.

B. Technical guidance from agricultural research

Development of recommendations and messages based on the characteristics of available technologies and information gained from formative evaluation will require close liaison with and frequent inputs from researchers. The staffing plans for both FHIA and MRN communication units include an agronomist with specific liaison responsibilities. At the pilot project level, the presence of research, extension and communication staff in the regional office will greatly facilitate this work.

C. Technical guidance from communications research

The development of a communication strategy (including mass communications) and a set of networking procedures constitutes the core CTTA dissemination activity. This is an area in which the need for major assistance from the resident advisors and short-term technical assistance is anticipated to work with and build competence of FHIA and MRN communicatioon unit staffs.

D. Management

The procurement, coordination and monitoring of the communication skills and service required by the strategy and networking activities will require management skills and experience on the part of the FHIA and MRN communications unit heads. Assistance in developing such management capability will, as needed, be provided by the FHIA Director of Communications and Development and the resident advisors. The head of the UCA in MRN has been in position for several years and is trained in communications, so will also assist in upgrading management capabilities at the regional level.

VI. Project Inputs

Inputs to be provided under CTTA will be of two major types, commodities and technical assistance. Although staff development will receive major attention, training support will be limited to short-term and in-service training in country. Also, some operations support funds will be suppied for both pilot project operations and evaluation. These inputs are further discussed in Section 1.6 and Annex D.

All Mission-funded advisors will be headquartered at the FHIA in Lima. They will travel to Tegucigalpa and Danli as required to carry out joint activities with the centrally-funded resident advisors and MRN as specified in their terms of reference.

Flexibility will be maintained to adjust timing and/or nature of technical assistance assignments in accordance with an approved implementation plan or specific approval of the relevant authorities (FHIA or MRN, USAID/Tegucigalpa and/or AID/S&T/ED).

VII. Project Outputs

Four major types of project outputs will be achieved that have special relevance to Honduras as well as to worldwide CTTA objectives:

1. Improved farmer agricultural production performance in the pilot region;

2. Developed and evaluated procedures for more effective use of communications in support of technology transfer that have widespread potential relevance elsewhere in the developing world;

3. A cadre of competent communication-related personnel, trained through experience in the CTTA program; and,

4. A set of institutions with the capability to extend the proven communication procedures progressively into other regions until they are in use nationwide.

A. Improved production performance:

Farmer production and income will be increased through wider adoption of available improved technologies. This process will be started during the life of the pilot project, but the stream of production benefits is expected to continue into the future.

B. More effective communication procedures:

The Honduras CTTA project will develop and evaluate sets of communication strategies and networking procedures that have potential utility or can be adapted for use in technology transfer projects and programs in other LDCs. Some elements should be ready for verification or adaptation in collaborating sites, no later than the end of the second year of operation.

C. Competent communications staff:

Training of Honduras communications staff will be accomplished through intensive, systematic in-service training events and learn-by-doing opportunities. Expertise within Honduras, supplemented by technical assistance provided to FHIA and MRN, will be utilized to impart this training. By the end of the project, Honduras will have a cadre of national staff capable of planning and implementing communication strategies and networking procedures based on those developed in the CTTA pilot project.

D. Institutional development:

The institutionalization process will have progressed to the point that: 1) the FHIA DCD and MRN UCA will be functioning in close coordination on a regular basis to maintain the core communications linkage system; 2) the communications network will be fully functional and expanded to include the broad spectrum of public and private sector institutions involved in the technology development and transfer process; 3) development and use of appropriate communication strategies will have become an accepted component of overall program planning; 4) the Danli pilot project will have moved from pilot to fully operational status; and 5) the Danli communication support program will be in the process of being implemented in the other MRN regions.

Experience gained in the CTTA pilot project will provide guidance to the MRN and USAID/Tegucigalpa in designing and implementing a future technology transfer project now under early consideration.

47

VIII. Role of Women

Women play an important role in rural Honduras, particularly in the coastal areas and in regions such as Danli. It is estimated that as many as 30 percent of the farming families are headed by women, and that women maintain the household accounts in rural areas. In this role, they make decisions as to what will be purchased from family funds, including agricultural inputs such as fertilizer. Most farming operations are performed by the men, although women participate in some activities such as corn shelling which is a family activity.

The Honduras Extension Service is placing increased emphasis on work with women. Conventionally, such activities are related to topics such as homeworking, gardening, and swine and poultry production. Some agricultural topics are now included in the women's program as well. This will be reinforced and expanded in the CTTA pilot project, recognizing the important role of Honduran women in agricultural decision-making. At present, all extensionistas (who work primarily with men) in the Danli region are men, and most of the promotores (who work primarily with women and youth) are women. The extension coordinator indicated, however, that women trained in agriculture can be appointed to extensionista positions.

IX. Primary Site Project Evaluation

The rationale, justification, and general description of evaluation studies to be conducted at CTTA sites have been discussed discussed earlier in the project paper. A summative evaluation will be made at each CTTA site, in addition to the formative evaluation required for development of messages and materials.

As the primary CTTA site, Honduras will receive the highest level of evaluation effort (a long term resident evaluation specialist with operating fundss required for the evaluation). This site will be examined in greater detail and will have more safeguards for reliability than will be possible at the collaborating sites. The evaluation will also look beyond outcome results to determination about not only <u>whether</u> a set of procedures worked, but also <u>how</u> they worked, information vitally important to future project implementors.

In Honduras, the evaluation will begin at about the same time as the intervention and continue for approximately four years. Large <u>n</u> (n=750 for budgeting purposes), random sample, household survey methodology will be required as well as smaller, more process-oriented studies using smaller samples. The design will include a "control" sample outside the pilot region and an "after-only" sample within the pilot region. Credit, sales and marketing data will be obtained from public sources.

Dependent variables will include those pertaining to quality and coverage of the intervention as well as to knowledge and behavior. Yield and income data will be examined, the relative importance of intervention elements determined, and intervention costs closely monitored.

ECUADOR

The first three collaborating sites - Ecuador, Peru, Swaziland - will come on stream during FY 86. Tentative implementation plans have been developed for each. However, final selection of pilot site areas and the mix of collaborating institutions and projects for each CTTA pilot site will be deferred until after the contract has been awarded for reasons such as those cited for Ecuador.

The plans for Ecuador participation in CTTA follows on and is complementary with other collaborating site plans. A letter of intent to participate from USAID/Quito Mission Director, Mr. Orlando Llenza, is included in Annex B.

A. Background

Potential collaborating USAID/Quito projects and local institutions have been identified; and the Salcedo region has been determined to be feasible as a pilot site, based on existing technologies and organizational and technical inputs. Although this site will be discussed for planning purposes, final selection will be left open until after the contract is awarded. To do so will be in the best interest of USAID/Quito and CTTA for several reasons:

- CTTA will start implementation in Ecuador a full year after the contract is awarded;
- the new Ecuadoran Government is in the process of effecting changes in the Ministry of Agriculture (MAG) research and extension system with the objective of involving producer associations more fully and giving them a more direct influence on research;
- prior to final selection, in-depth investigations are needed of alternative potentially feasible pilot sites -- including consideration of a coastal province;
- USAID/Quito is now in an advanced stage of redesigning its Rural Technology Transfer Project to emphasize producer organization involvement in research and extension.

Since the Rural Technology Transfer Project will be one of the major links with CTTA, flexibility in planning will provide maximum opportunity for mutual project reinforcement.

B. Collaborating projects and institutions

Three USAID/Quito projects, all of which are scheduled to terminate or be revised by FY 86, offer the greatest potential for linking with CTTA. In this situation CTTA has an opportunity to contribute to future Mission plans in the technology transfer area.

The Mission's Integrated Rural Development Project (SEDRI) offers the greatest potential at present as an institutional base for a CTTA pilot project. SEDRI regions have well-defined boundaries, and reasonably well-staffed regional offices. Some use is already being made of radio, silkscreen and other media in presenting agricultural information. SEDRI officials at both the regional and national levels have expressed strong interest in the CTTA project. Their integrated pattern of participation by a group of developmental agencies including those with agricultural research, extension and training functions should greatly facilitate carrying out the technical and managerial functions required.

Mission concern about the future of SEDRI makes it advisable to defer until next year a final decision about using SEDRI as the CTTA institutional base in Ecuador. Mission funding is presently scheduled to terminate in FY 86, and the possibility of an extension or revision of the project with some level of continued funding is still not clear. Future support to SEDRI by the new Government is likewise an imponderable at this time.

The National Campesino Training Institute (INCCA), supported in part by joint S&T/ED and USAID/Quito funding, is providing training support to the regional SEDRI projects. Coordination at the local level is facilitated by an INCCA coordinator assigned fulltime to the SEDRI regional project office. Extensive use is made of teaching materials developed by INCCA in various media in training events for staff and campesinos. Current A.I.D. funding support to INCAA is scheduled to terminate in FY 85, and will probably not be continued. As in the case of SEDRI, however, the level of future government support is an imponderable. For these reasons, INCCAs role in relationship to CTTA can not be determined finally at this time. INCCA will be available, however, to provide some form of support in training expertise.

The USAID/Quito Agricultural Techology Transfer Project has been oriented toward determination and coordination of research priorities and programs through a high level Council. This Title XII project is now in the late stages of major revision.

The revised project will focus on working directly with producer associations to emphasize involvement of such

organizations in research and extension. Although producer associations will be included in the CTTA communications network and serve as valuable dissemination and feedback channels they would be virtually impossible to utilize as the institutional base for a project such as CTTA.

The national agricultural research organization, INIAP is the only potentially viable research link with CTTA identified to date. Although seriously under-financed at present, INIAP has developed significant improved technology and functions as the coordinating mechanism between national and international research programs (see Section D below).

USAID/Quito views CTTA as a strong supporting project, with the possibility of it serving as a bridging mechanism between present and future projects, and to provide an additional dimension of imputs into the re-structuring of present projects.

C. The Pilot Region

Sites feasible for a CTTA pilot project can be identified in Ecuador. Salcedo, a varied Sierra region of more than 5,000 farms representing a broad spectrum of agricultural and socio-ecomonic conditions, is the preliminary selection for a pilot project site.

Salcedo is located in a major agricultural area and is easily accessible to Quito by road. A substantial amount of underutilized improved technology adapted to the region is available (see Section D below). Regional SEDRI and INCCA leadership are interested in and enthusiastic about the possibility of participating in a project such as CTTA (similar expressions of interest have been received from SEDRI, INCAA, and INIAP at the national level).

The USAID/Quito - supported integrated rural development project (SEDRI) is in its fourth year of operation in Salcedo, and has a significant presence in the region. Its regional staff, headed by a researcher on deputation from INIAP, is comprised of more than 20 persons representing at least six ministries or agencies. Two staffers from INIAP are responsible for conducting field trials and several from MAG do agricultural extension work. A full-time coordinator from INCCA participates in planning and organizing training events - all communications-related equipment in the project belongs to INCCA. Sub-projects of SEDRI in the region can be grouped into three categories: production, infrastructure, and social organization.

40

Local farmer organizations, built around 18 "Centros de Servicios Communes" are well-established and functioning. Local radio stations are already being utilized for some regular programing in both Quechua and Spanish.

Thus, Salcedo satisfies the minimum criteria for an acceptable CTTA pilot project site. A major drawback is the sporadic nature of research and on-farm trials conducted in the region, making future availability of a continuing flow of new and improved technology somewhat uncertain. USAID/Quito believes that this situation will improve with the development of increased producer organization influence on INIAP's budget.

D. Technology transfer objectives

The present and future availability of new and/or improved agricultural technology adapted to Salcedo must be considered within the context of the agricultural research system and its capabilities. The principal agricultural research organizations in Ecuador are INIAP and the Agricultural Universities working collaboratively with CIP, CIMMYT, CIAT, Bean/Cowpea CRSP and other donor research programs. The headquarters for the CIMMYT Andean Zone research program is located in Quito which has been beneficial to the Ecuadorian small grains and maize programs.

CIP maintains a very active outreach program in Ecuador working collaboratively with Dr. Francisco Munoz at Santa Catalina as well as other INIAP scientists (Dr. Munoz has recently been appointed Research Director for INIAP). The Bean/Cowpea CRSP has an active collaborative research program which is headed by Dr. Wes Kline, Agronomist from Cornell University living in Quito. Agronomic research on beans and cowpeas is beginning this year.

The new thrust of the Government of Ecuador will be to target technical assistance to the private producer associations representing the 10 priority commodity areas. The public research agencies will serve in a facilitating role under this plan. It is unclear at this time whether the institutional infrastructure and staff development has the continuity necessary to sustain a long-term and productive agricultural research program for Educador. Nevertheless, INIAP, with strong support from the IARC's and CRSP's, has made significant research progress in several areas which will benefit the CTTA project in SALCEDO.

The following examples are illustrative of research output currently available in the Salcedo region.

51

1. Improved Barley Varieties

Barley is the most important cereal grain in the Salcedo region. The varieties preferred are two-row, hulless types with large grain and high-test weight. Barley is used for direct human consumption in Salcedo and the "rice-type" varieties with viterous endospern grain are prefered.

One new improved disease-resistant variety TERAN was released in 1978 following a severe yellow rust epidemic which wiped out much of the availabale germplasm in Ecuador. (TERAN-78 is derived from a Beltsville germplasm source PI 669 which was introduced into Ecuador by the Rockefeller program several years ago.) Yields of TERAN-78 without fertilizer average about 1 ton/ha. compared to approximately 700 lbs/ha. for the local variety. The addition of 50 lbs. of nitrogen and 60 lbs. of phosphorous per hectare increases yields of TERAN-78 to about 3 tons/ha. whereas the local variety produces only about one and one-half tons/ha. with fertilizer.

Farmer acceptance of TERAN has been good, but seed multiplication/availability has been a problem. Adoption rates could be increased if seed prices (which now run 3 times the cost of farmer produced grain) could be reduced. A local "Save the Children" program is working toward this objective by experimenting with additional new improved barley varieties. RITA and CAYAMENA have similar high yield potential when fertilized appropriately and are currently in farmer trials for evaluation. The National Cereals Extension program PRONACER is responsible for diffusion of varietal and culturual practice information on barley, but is handicapped by problems which generally afflict all national extension programs in Ecuador.

2. Cultural Practices and Improved Wheat and Triticale Varieties

New fertilizer recommendations for wheat have been developed by INIAP, CIMMYT and PRONACER. The 80-80-0 formulation is profitable at current wheat prices (which have recently gone up 150 percent) especially if combined with improved varieties now available. Wheat yields in station trials can be increased from one ton to two and one-half tons per hectare with improved management and varieties. The major constraint may be acceptability by Flour Mills on the coast who have had easy access to U.S. and Argentine wheat brought in under relaxed import quotas.

Two new Triticale varieties (INIAP Mana and INIAP Variety-14) are performing very well in marginal areas of Salcedo for use primarily as a feed grain. Triticale yields are about 1/2 ton per hectare higher than barley yields grown under the same conditions. Triticale is acceptable as a food grain in Salcedo and so provides a dual option for marginal farmers under stress conditions.

3. Potato Improvement

Four new potato varieties have been released by INIAP in cooperation with CIP. The varieties INIAP-Esperansa, INIAP-Sta. Catalina, INIAP-Gabriela, and INIAP-Sta Cecilia are well-adapted to the Salcedo region and all are resistant to late blight and tolerant to the cyst nematode. Yields of 25-30 tons/ha. are possible with reasonable levels of crop management for the improved varieties in comparison with national average potato yields of 12-13 tons/ha. Excellent foundation seed is available of viral-free tubers developed from meristem culture (300 tons now available). The new varieties are white-skinned types which differ in color from local varieties. Another white-skinned variety has recently been accepted by Salcedo farmers which suggests that an appropriate educational program whould be successul in gaining acceptance of the improved varieties.

An improved storage technology for maintenance of seed potatoes has also been developed and is being demonstrated in on-trial farms.

4. Soil Conservation

An increased awareness of soil erosion problems led to the development of an A.I.D.-funded soil conservation program in Salcedo in 1981. The objectives are simple and solutions low cost. Emphasis is on building simple tools to construct diversion ditches, methods of using grass waterways, and the advantage of plowing on the contour with oxen rather than plowing up and down the slope with tractors. Simple demonstrations using run-off pans at the base of slopes with alternative conservation practices show farmers the loss of soil, seeds and fertilizer pellets following heavy rains after planting on slopes prepared by traditional practices versus improved practices. An excellent soil scientist Dr. Fausto Maldonado is leading the effort. A major research/communications effort is needed in Salcedo on soil conservation.

5. Irrigation Techology

New research on irrigation technology is being conducted by A.I.D./IICA/SEDRI on a 400 hectare irrigation scheme just completed in Salcedo. The technology developed could provide a model for a 30,000 hectare IDB scheme in the same region using water from the Cucuchi river. Slopes on the 400 hectare pilot scheme average 10-20 percent. An experiment last year using drip irrigation failed because of cost and because of lack of appropriate communications with farmers (according to Diego Londono, IICA). Approximately 60 percent of the farmers in the Salcedo region speak only Quechua. New experiments using gravity-fed sprinkler irrigation systems proven effective in Guatemala will be in progress in Salcedo this year.

TECHNOLOGY TRANSFER

TABLE E

ECUADOR: SALCEDO REGION

* TECHNOLOGY DESCRIPTION	EXIST-ING	NEW	% YIELD GAIN	INPUT (HIGH/MOD/LOW	** PRACTICE REQUIRING CHANGE	*** LEVEL OF DIFFICULTY
Improved Barley Varieties	X		30-40	M	Variety Fertilizer Seed Multiplication	3
Improved Wheat Production	X		50	M	Variety Fertilizer Marketing	4
Potato Improvement	X		20-30	L	Variety Fertilizer Consumer acceptance	3
Soil Conservation	X	X	N/A	L	Soil management Cultural Practices Appropriate Cropping System	5
Irrigation Technology		X	N/A	H	Irrigation Technology Cropping System Water Management Soil Management Horticulture Input	8

* The above list of technologies is not meant to be an exhaustive list but essentially to provide examples of underutilized and new technology which can be verified from existing research data.

** Target audience is always considered to be both the farmer population and change agents, public and private sector. Existing technology is available in an area but is underutilized. New technology is in an introductory phase of adoption in an area.

*** 10 = most difficult

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51

A Swiss fruit tree experiment station in Salcedo should be integrated with the irrigation project to help develop cropping systems for the scheme. The resident SEDRI director at Salcedo (Oscar Eskola) has recently received short-term training in irrigation technology in Idaho. Post harvest technology is being provided by Idaho under an A.I.D. agreement. Marketing studies are also needed.

E. Project inputs

CTTA will provide long and short-term technical assistance, some equipment and operational funds, a case study evaluation of project impact and funding for participation in CTTA regional meetings and international conferences. These inputs are further described in Section 1.6.

The long-term advisor will reside in the pilot region, but travel frequently to Quito to work with national level staff of the involved organizations. In Salcedo, he/she will work with the base institution (presumably SEDRI) to effect networking procedures required to maintain a continual exchange of information among rural families, local producer organizations, INIAP, INCCA, and other public and private entities involved directly or indirectly in the technology development and transfer process. The objective will be to increase the impact of local technology transfer efforts through improved communications.

Short-term technical assistance will be provided in areas of expertise not well represented in the country, particularly in the areas of behavioral science, social marketing and evaluation.

3. Operational funds. CTTA will provide operational support for long and short-term advisors and a limited amount for preparation and production of materials in various media.

4. Evaluation. A final sum will be allocated, sufficient to provide a senior evaluation specialist, support staff and operational funds required for conducting an evaluation case study of project impact.

5. Meeting participation. Funds will be provided to permit attendance by local staff in CTTA-sponsored regional meetings and international conferences, and for organizing at least one such event in Ecuador.

F. Project output

Project outputs will have relevance to both Ecuador-specific and CTTA worldwide objectives. The methodology resulting from the pilot project will be selectively introduced in other provinces through interaction with the national level staff of the major collaborative institutions and site visits between provinces.

The results of the Ecuador pilot project will combine with those of Honduras, Peru and Swaziland to provide the initial basis for the cross-national procedures and methodologies required by CTTA.

G. Role of women

Seasonal migration of men in the central and western parts of the Salcedo region was cited by SEDRI and INCCA as a major factor in designing appropriate training and information dissemination programs. In some areas, the men customarily return home on weekends and retain major decision-making prerogatives. In such cases, training events are arranged on weekends as possible to take advantage of the men's presence. In other areas, the men may be away for several months or longer, returning home only at the critical crop production stages such as seeding and harvest. In these cases, the women have a much more significant decision-making role.

The impression gained from Salcedo SEDRI and INCCA staff was that agricultural training and information events are strongly oriented toward men. However, review of attendance figures at visits to field trials organized through SEDRI reveals that a significant number of women, nearly one-half of total attendance in some instances, have attended such events.

CTTA will, through its formative evaluation determine more about the role of Salcedo women in an agricultural context and utilize the results in designing and implementing appropriate strategies.

H. Ecuador pilot project evaluation

The summative evaluation of this CTTA pilot project, although less detailed and in-depth than in Honduras, will be substantive and provide valid estimates of project impact. As indicated earlier, a case study methodology will be the basic approach used for collaborating site evaluations.

PERU

The plan for Peru participation in CTTA follows the general plan for collaborating sites, utilizing an institutional base and structure distinctive to Peru.

A. Background

Collaborating USAID/Lima projects and local institutions have been identified; and two sites have been identified, either of which would meet selection critiera for a CTTA pilot project site. The Executive Director of Agriculture Promotion Extension in the National Agricultural Research and Promotion Institute, Ing. Alfredo Mendivil B., has expressed stong support for participating in CTTA and would prefer that it be implemented in Peru as early as possible. USAID/Lima also supports the CTTA project, and the NCSU technical assistance contractor team for the USAID/Lima Research and Extension Education project expresses the conviction that lack of effective communication support is the greatest single obstacle to achieving teachnology transfer in the areas with which team members are familiar.

The CTTA pilot project will be implemented in Peru in FT 86. Final selection of the pilot region site will be made during preparation of a detailed project implementation plan.

B. Collaborating Institutions and Projects

USAID/Lima recognizes the potential for CTTA to contribute a communication support dimension to its present Agricultural Research, Extension and Education Project (REE) with INIPA, now in its third year of implementation with technical services provided through a contract with North Carolina State University (NCSU).

The Mission also sees an important role for CTTA in assisting in the development of the Agricultural Research and Extension component of its planned Agriculture Sector Recapitalization Project.

The National Institute for Agricultural Research and Promotion (INIPA), created in 1981, provides a tailormade institutional base for CTTA through its system of Centers for Agricultural Research and Promotion (CIPAs). Eighteen such CIPAs, corresponding roughly to departmental boundaries, are distributed thoughout the country. USAID/Lima is supporting four major types of INIPA activities: A) five national production programs and two systems programs, each of which has research, extension and training components; B) extension and

research support activities; C) an education and human resources program to strengthen INIPA's human resources capability; and D) management support activities. Effective technical assistance in support of these activities is being provided by NCSU through the aforementioned contract. INIPA is also collaborating with an array of international research institutions and programs.

In addition to the USAID/Lima assistance for research and extension such as that cited above, the World Bank and Inter-American Development Bank are also providing significant support to INIPA's development. Donor agency assistance is being coordinated, with each working in pre-assigned areas. For example, an Israeli team is working with four CIPAs in northern Peru; while USAID is directing its assistance at the regional level to other CIPAs, including the two being considered as potential CTTA pilot program sites.

The T&V extension system was accepted by INIPA at the outset. In practice, however, it is being modified substantially in most of the country. Peru collaboration with the international research community is discussed in Section D below.

In the area of communications, the FAO-supported Audio-visual Services Training Center (CESPAC), is another potential resource that has been utilized to only a limited extent by INIPA thus far.

Thus, all of the institutional elements required for a CTTA pilot project are present in INIPA at the regional level CIPAs, with strong support available from the national level organization, the NCSU contract, other donor agencies, and international agricultural research centers and support programs such as the CRSPs.

C. The Pilot Region

Tarapoto in the Selva and Huancayo in the Sierra have been recommended as pilot sites. Both meet the selection criteria for CTTA. Farmer populations are varied. Tarapoto is easily accessible to Lima by air, and Huancayo is accessible by road (6 hours drive) or private plane. CIPAs are well-established and functioning in both regions. Significant technology transfer opportunities exist in both regions. The INIPA-CIAT rice production research project is situated in the Central Area of which Tarapoto is a part. The International Potato Center (CIP) has its principal regional location in Huancayo. Although time constraints did not allow the PP development team to visit either site, the interest and commitment of INIPA at the national level was strong, and a similar situation was reported for regional staff. Technical communication support is adequate at both sites. As indicated above, final site selection will be made during preparation of a detailed implementation plan.

D. Technology Transfer Objectives

Substantial packages of presently underutilized new and improved technology are available for both the Tarapoto and Huancayo regions. Those for Tarapoto are all of the high input type, however, while both high and low input types are available for Huancayo.

Agricultural Technology in Peru

The main research and extension institution in Peru is INIPA. The N.C.S.U. project provides advisors to INIPA, and the IARC's provide co-leaders for the five major production programs in the country (corn and sorghum, rice, small grain, roots-tubers, and grain legumes). There are leaders and co-leaders responsible for technical and administrative direction of each program. The leaders are Peruvians employed by INIPA while the co-leaders are technical advisors contracted from one of the International Research Centers and financed by a World Bank loan. This system seems to be working quite effectively. There are also two Systems Programs, one for the Sierra and one for the Jungle. Each program has research, extension and training components. Extension and Research support activities consist of a National Agroeconomic Program, an Expanded Service Laboratory Program, a Foundation Seed Production Program, and recently established research programs in Integrated Pest Management (IPM) and National Genetic Resources (primarily on indigenous crops).

1. Agricultural Technology--Tarapoto-Huallaga (Central Peru)

The INIPA rice production project is the Huallaga Central Area of Peru would provide an excellent pilot site for the CTTA program. The technology package has been put together over the last two years by INIPA in cooperation with Dr. Ed Pulver (co-leader, National Rice Program) from CIAT. Although the present area in rice production in Huallaga Central is limited to less than 3,000 hectares, there is great potential for expanding irrigated rice production to an estimated 40,000 hectares. At least 50 percent of this area is capable of producing two crops per year. Present yields are excellent, ranging from 5-8 tons/ha. using the high-yielding cultivar CICA-8. The potential production is approximately 300,000 tons of rice/year, which would make a significant contribution toward the goal of self-sufficiency for Peru in rice.

The strategy for developing the potential rice production in the Huallaga Central area is based upon increasing the area under cultivation without significantly reducing the present yield/ha.

TABLE P

TECHNOLOGY TRANSFER
PERU: HUANCAYO REGION

* TECHNOLOGY DESCRIPTION	EXIST-ING	NEW	% YIELD GAIN	INPUT (HIGH/MOD/LOW	** PRACTICE REQUIRING CHANGE	*** LEVEL OF DIFFICULTY
Huancayo Region						
Potato Production	X		30	I	Fertilizer Soil Analysis lab Varieties	3
Basic Seed for Potato Production	X		Unknown	L	Seed Distribution Seed Certification	4
Storage of Potato Seed	X		N/A	L	Credit Diffused Light Storage	3
Maize Production	X	X	Unknown	L	Varieties Cultured Practices	3
Vegetable Production	X	X	Unknown	H	Fertilizer Marketing	2
PERU: TARAPOTO REGION						
Irrigation Technology	X		N/A	H	Land clearing Land leveling Irrigation Technology	2
Improved Rice Varieties	X	X	80-100	L	Disease resistances Lodging residence Early maturity	1
Direct Seeding of paddy rice	X		Reduce labor costs	I	Cultural practices Cyclone seeders Credit	2
Weed control of paddy rice	X		Reduce labor costs	I	Cultural practices Credit Herbicides	2
Harvesting and Threshing of paddy rice	X		Reduce labor costs	I	Mechanization Credit Post Harvest Storage Marketing Transportation	4
Maize Production	X		Unknown	L	Varieties Cultural Practices Fertilizers	3
Sorghum Production		X	Unknown	L	Varieties Cultural Practices Fertilizers Marketing Poultry Industry	5

* The above list of technologies is not meant to be an exhaustive list but essentially to provide examples of underutilized and new technology which can be verified from existing research data.

** Target audience is always considered to be both the farmer population and change agents, public and private sector. Existing technology is available in an area but is underutilized. New technology is in an introductory phase of adoption in an area.

*** 10 = most difficult

a. Improved High Yielding Rice Variety

The farmers are planting a high-yielding improved variety (CICA-8) that possesses sufficient resistance to the major pathogens. The Huallaga Central area is not devoid of biological constraints, and there is no assurance that the present level of disease pressure will remain constant. Pyricularia and Helminthesporium are major pathogens in this area since susceptible varieties are infected severely and perform very poorly. CICA-8, however, rarely has lesions to a level that can result in yield depression. CICA-8 may not maintain its present level of resistance but an adequate INIPA/CIAT research base should have alternative resistant varieties if and when needed. CICA-8 is somewhat susceptable to lodging because of increased height brought about by high soil fertility and long growing period. This minor deficiency is being corrected by introducing material with equivalent levels of disease resistance and yield potential but earlier in maturity (120 days vs 145 days), shorter and/or with better straw strength. Rice breeders in the area are presently pursuing these objectives and do not view this as a major task.

b. Technology Package

The technology package has been demonstrated to be effective and has been designed to alleviate the principal constraint on irrigated rice production in the area which is the availability of labor. The reliance on manual labor not only restricts the area in production but has also greatly added to the cost of production. The success in developing the potential rice production areas depends upon the farmer adopting improved agronomic practices, thereby allowing for the same use of manual labor but over a greatly expanded area. The present inability of the farmers to expand new areas of production can be traced to three practices: (1) transplanting; (2) manual weed control and (3) hand harvesting and threshing. (The following technology descriptions are adapted from a conversation and paper from Dr. Ed Pulver, INIPA National Rice Program and CIAT.)

i. Direct Seeding Technology

Transplanting rice in the Selva is a result of the transfer of technology developed in the coastal areas. The reasons for transplanting rice seedlings in the coastal areas are probably valid due to the high soil salt content and water shortage which give transplanted rice an advantage as compared to direct seeding. Although neither of these constraints is present in the Selva, the coastal technology has been transferred. Consequently, an important step is to change the present method of transplanting to direct seeding. On an economic basis, there is no comparison between the two systems as transplaning requires 20-30 man-days/ha. whereas one man using simple technology can direct seed a minimum of 5 ha./day. Direct

58

seeding of rice has a few requirements that are not present in the transplanted system which requires some minor adjustments by the farmer. More uniform land leveling and chemical weed control must accompany direct seeding technology. Since direct seeding functions best on level land, newly cleared land may have to be transplanted or at least prepared by fangueado for one or two seasons before it is sufficiently uniform to allow for direct seeding. The sowing of dry seeds requires that water be applied for germination but standing water must be avoided. Likewise, pre-germinated seeds must be sown in saturated soil but not standing water and water may have to be applied within 2-3 days after sowing to prevent desiccation of the sensitive seedling. Most of the land presently in production is sufficiently level to allow for direct seeding providing a small amount of care is taken during land preparation.

ii. Weed Control Technology

Direct seeding of dry or pre-germinated seeds is dependent upon chemical weed control. With the transplanted system most weeds are controlled by constant flooding and aquatic weeds are controlled using hand labor. In the direct seeded culture the fields are not flooded until 20-30 days after planting allowing for the establishment of weeds along with the crop. It is almost impossible and certainly uneconomical to hand weed broadcasted plantings. At present, weeds are not a serious yield constraint in the Hullaga Central area as most fields are new but weed control will become an important factor in the near future. There are many effective herbicides developed for use in the direct seeded system, and most of these are available in Peru. Teaching farmers to spray herbicides is not viewed as a serious task, as many have experience applying fungicides and other chemicals. However, proper equipment for applying herbicides is limiting. In almost all areas worldwide where direct seeding is practiced, herbicides are applied with airplanes or on a very limited extent with back-pack sprayers. Aerial applications are obviously not practical on the relatively small fields. Back-pack sprayers can be used but they are very laborious. A more appropriate method of application of herbicides may be the use of controlled droplet applicators (CDA) that are hand-operated using common flashlight batteries as an energy source. These units are available at a reasonable cost (US$100) and they are very economical in that normally the rate of herbicide required is reduced by as much as 50 percent and one man can spray as much as 5 ha./day. The use of the CDA is under evaluation in Tarapoto.

iii. Harvesting Technology

Harvesting and threshing rice by hand is toilsome and expensive. In the Huallaga Central area, farmers are presently contracting laborers at the minimum wage to harvest and thresh 500m^2/man/day; equivalent to 30 man-days/ha. Even with this procedure, harvesting is often delayed and mature grain is left in the field for a period of 1-2 months due to the shortage of labor. If direct seeding is adopted, it will accentuate the harvesting problem. However, there are means of harvesting and threshing rice that are suitable for use in the Huallaga Central area. Obviously, large, mechanized harvesting equipment (combines) are beyond the resources of the average farmer and are not suited for the rather small holdings that are common in this area. In Asia, small reapers and threshers have been used for many years. This equipment is ideal for the present situation and they are relatively inexpensive and efficient. The International Rice Research Institute in the Philippines has developed small equipment that is capable of cutting and wind-rowing up to 4 ha./day using one to two men. This reaper employs a 6-8 HP engine and can be fabricated locally. Also, IRRI has designed a small portable thresher that uses a 5 HP engine and can thresh 300-600 kg./hr. This thresher is not a complicated machine and can easily be built in Tarapoto.

It should be emphasized that the technology proposed for introduction into the Huallaga Central area is not new and untested. Also, careful consideration of the present farming situation has been given in order to identify the most appropriate technology. Little research is required on the proposed improved practices, they only need to be "fine-tuned" to fit the local farmer's situation.

A proposal has been developed by INIPA for the extension of the new rice technology package in Huallaga Central (Tarapoto area). A central feature of the plan is the integration of the rice research and extension staff, which is currently in progress. The CTTA pilot project can be a major contributing factor in the successful implementation of this plan.

2. Agricultural Technology -- Huancayo Region.

Specific Agriculture Technologies identified as examples of new or underutilized technology in the Huancayo region include:

a. Improved Cultural Practices for Potato Cultivation

The potato is an important dual purpose crop in the Huancayo region. In good years, the surplus potato crop on small farms (1-3 Ha) can be marketed as a cash crop for income, whereas in poor years the small farmers can use the crop for family subsistence. Farmers are aware of the advantages of fertilizer and improved cultural practices since farm manure has been used

for many years. They are not aware of the proper use of chemical fertilizers, especially interaction between fertilizer and plant population density. Farmers generally cultivate at seeding rates of 1 - 1.5 tons/Ha rather than the more optimal rate of 2 - 3 tons seed per hectare. INIPA data shows that yields can be increased by 30 - 50% through applications of 100 Kg per hectare of nitrogen and 80 - 120 Kg per hectare of Phosphorous. Soil maps are needed to determine Phosphorous rates since many soils are "Phosphorous fixers."

Soil analysis would be helpful but is not generally available in Huancayo. Dr. Fernando Ezeta (INIPA Potato leader) regards the reasons for the lack of adoption of improved cultural practices as (1) lack of adequate communication, (2) lack of motivation and (3) lack of good economic data on cost/benefit analysis. It should be noted that farmers in the floor of the Montero Valley utilize most of the information available, but farmers at higher elevations underutilize the available technology.

b. Improved Potato Varieties

The INIPA program has developed several more productive, disease resistant potato varieties adopted to the Huancayo region. Rate of adoption for these varieties is approximately 30 percent for the region as a whole. Montero valley farmers have a much higher rate of adoption of improved varieties (approximately 70%). As expected, the higher one goes in elevation in Huancayo, the higher the frequency of native vs. improved varieties being cultivated.

c. Basic Seed Program for Potatoes

Three years ago there was little or no basic seed program for potatoes in Huancayo. Swiss funding of a basic seed program began in 1983 and has now progressed to the point where good quality seed is widely available. Currently certified potato seed is used on only 5 percent of the approximately 200,000 hectares of potatoes grown in Peru. High quality seed is vital for potato cultivation on the coast because of seed borne disease problems. Research is now in progress to determine the value of high quality seed for highland farmers. Information on the value of certified seed for farmers in different regions will soon be available for distribution to farmers, but the diffusion process will be difficult because of the variability in need. Meristem culture to produce "viral disease free" seed stock is available but not widely used in Peru at this time.

Seed Movement studies have recently shown that some coastal farmers send seed from their farms to the highlands for seed increase, a practice that INIPA would like to discourage for phytosanitary reasons. A well implemented basic seed program will alleviate this problem if it is effectively utilized.

61

d. Improved Storage of Potato Seed

Diffused light storage (DLS) of potato seed has been developed and improved in recent years. Proper storage has become increasingly important in recent years since improved varieties with earlier maturity tend to sprout sooner than later native varieties. The CTTA program would help disseminate this storage technology, especially the interaction between storage technology and variety used.

e. Other Improved Technology in Huancayo

New technology exists for maize production (improved varieties), small legume production, barley cultivation, vegetable production in the Montero Valley for Lima markets, and new soil conservation practices. More extensive information and a site visit are needed to obtain detailed assessments of these technologies.

E. Project Inputs

CTTA will provide long and short-term technical assistance, some equipment and operational funds, a case study evaluation of CTTA impact, and funding for one international conference in Peru plus participation in CTTA regional meetings and international conferences.

1. Technical assistance. The project will provide a resident communications advisor for 3.5 years and 8 person months of short-term technical assistance.

The long-term advisor will reside in the pilot region, but travel frequently to Lima and elsewhere in-country as appropriate to work with INIPA, NCSU, and other collaborating institution staff. In the pilot region, the advisor will work through INIPA to establish networking procedures required to maintain continual exchange of information among rural families, INIPA, local producer organizations, and other public and private entities involved in the technology development and transfer process to increase the impact of local technology transfer efforts through improved communications.

Short-term technical assistance will be of two types: 1) 2 person months in FY 86 for participation in the Mission-supported area-wide assessment in Huancayo; and 2) 6 person months will be provided in areas of expertise not well-represented in Peru, particularly in behavioral science, social marketing and evaluation.

F. Project Outputs

Project outputs will have relevance to both Peru-specific and CTTA worldwide objectives:

1. Improved agricultural production performances achieved by farmers in the pilot region;

2. More effective use by INIPA and other collaborating institutions of communications in support of technology transfer, utilizing procedures developed and evaluated by CTTA.

3. A cadre of competent communications-related personnel in the INIPA pilot region CIPA.

4. Institutionalization of the CTTA approach to the stage that INIPA is in the process of extending it to other CIPAs and other agriculturally-related programs.

5. During the CTTA pilot project, relevant strategies, methodologies and procedures developed by CTTA will be made available immediately to other programs and projects such as the USAID/Lima-supported on-farm water management and soil conservation programs in the Sierra resulting in improved performances of such projects.

The results of the Peru project will, in addition, combine with those of Honduras, Ecuador, and Swaziland to provide the initial basis for developing the cross-national procedures and methodologies required by CTTA.

E. Role of women

Women are active participants in the Peruvian agricultural sector. Among the many roles which women play, perhaps the most important is that of general manager of the basic economic unit, the household. In the role of manager, women have an important input in determining cropping patterns, as well as disposal of cash income.

CTTA through its formative evaluation process, will determine more about the role of women in the agricultural context and utilize the results in designing and implementing appropriate strategies.

H. Peru pilot project evaluation

The summative evaluation of this CTTA pilot project, although less detailed and in-depth than in Honduras, will be substantive and provide valid estimates of project impact. As indicated earlier, a case study methodology will be the basic approach used for collaborating site evaluations.

SWAZILAND

CTTA will complement the USAID/Mbabane Cropping Systems Research and Extension Training Project (645-0212) and the "Development Communications" component of the FY 84 Swaziland Manpower Development Project (645-0218) as described below. Mbabane 876 indicates the Mission's intent to collaborate and is included in Annex B.

The Cropping Systems project provides significant support over a five-year period for improving low productivity and income levels of small farmers on Swazi Nation Land (SNL) which covers 60 percent of Swaziland's total land use area. The purpose of this project is to improve and expand the capacity of the Ministry of Agriculture and Cooperatives (MOAC) research and extension program to develop and effectively extend cropping systems recommendations relevant to the needs of the SNL farmer. To achieve this purpose, emphasis is being placed on institution building in three critical areas: research, extension and agricultural information.

The Cropping Systems project, now entering its third year of implementation with technical services being provided through a contract with Pennsylvania State University, is designed to alleviate major contraints to the development of an effective research and extension process which include:

- Lack of trained manpower:
- Absence of a systematic approach to the development of relevant research recommendations, extension packages, and supporting services such as teaching aids:
- An inadequate in-service training program:
- Little integration of research, extension, and support functions; and
- Lack of adequate equipment and, in some cases, factilities.

The research and extension phases of the project are progressing well, but the information phase is behind schedule. A technical advisor has recently arrived to work with the MOAC Agricultural Information Section (AIS) to assist the conversion of research recommendations into extension packages with back-up support such as posters, flip charts, farm bulletins, and other extension aids. A new facility will be constructed, equipped, and made operational.

The Development Communications component of the Swaziland Manpower Development project (645-0218), which S&T/ED assisted in developing, is designed to reduce three major constraints to more effective development communications in Swaziland.

- Poorly trained communicators;
- An insufficiency of production facilities for development broadcasters; and
- Poorly focused communications by the various development elements of government.

The Development Communications sub-project will focus on training, the development of facilities, and organization, including the establishing of working relationships with various development Ministries. It is anticipated that these inputs will be managed by the proposed Unit of the Swaziland Broadcasting Service (SBS), the "Center for Rural Broadcasting and Information." SBS management of the Unit will be in coordination with the development Ministries, including MOAC, and with non-governmental institutions.

CTTA will assist the AIS component of the Cropping Systems project and the Development Communications sub-project as it relates to MOAC in the following ways:

- The successful conduct of pilot communications efforts in association with the Cropping Systems project;
- Establishing viable linkages and coordination mechanisms among research, extension, the Center for Rural Broadcasting and Information, the public and private agro-support sector (inputs, credit, marketing, etc.), educational institutions, and farmers; and
- Utilization of all possible dissemination channels for reaching farmers, including but not restricted to extension.

The major CTTA activities will be carried out in conjunction with the two Mission projects. These activities will parallel those at the LAC sites: the conduct of a pilot communications effort as a focal point for development of improved communications methodology for reaching Swazi farmers; and the development of a communications network to facilitate the design and implementation of an effective agricultural communications support system directed toward the needs, interests, and opportunities of Swazi farmers. It is anticipated that the resident advisor funded under this project will work in close collaboration with the resident advisor funded by the Mission under the Cropping Systems project.

PHASE II: DIFFUSION OF THE METHODOLOGY.

CTTA will implement several types of diffusion activities, begining early in Phase I (FY 87) so that other countries not participating directly as Phase I sites can benefit from an exchange of information and visitors while project activities are still in operation:

1 Seminars and technical assistance missions;
2 Instructional manual and videotape series; and
3 Publications, papers, and professional communication.

1. Seminars and technical assistance missions. Five regional seminars and seven short-term technical assistance missions (estimated at four activities per region) will be authorized to assist additional Missions in studying the feasibility of adapting the procedures developed under CTTA. If feasible, International Research Centers will be given small grants or cooperative agreements to conduct three of these regional diffusion seminars.

2. Instructional manual and videotape series. A manual for A.I.D. field officers and a series of three twenty-minute videotapes about project procedures will be produced to assist in the diffusion of CTTA methodology.

3. Publications, papers, and professional communication. The project will attempt to achieve broad dissemination of results through the international agricultural professional community. Particular attention will be given to continued interaction with the international agricultural research centers and other A.I.D. projects studying the agricultural research-extension relationship during the life of this project. A series of at least three one to two day "Faculty Seminars" will be conducted at A.I.D./W during LOP for University and donor agency professionals about advances and techniques developed of under the project. (attendees will pay their own way.) Project staff will also be available to assist instructional efforts at U.S. universities, as feasible.

In addition to implementation plans for each site, the annual project report, and occasional papers and publications from CTTA professional staff, the project will produce a series of formative evaluation reports or "Field Notes," a series of four summative evaluation reports on the Honduras data, a series of summative evaluation case studies, and a book-length manuscript suitable for publication on the overall CTTA experience.

Figure 1 presents an overview of the timing of Phase I and Phase II activities.

FIGURE 1
TIMING OF PROJECT ACTIVITIES: FY 85-92

	/85	/86	/87	/88	/89	/90	/91	/92
Phase I								
Honduras: 4 yrs.	/							/
Ecuador, Peru, Swaziland: 3.5 yrs.			/					/
Three additional sites: 3 yrs.				/				/
Two additional sites: 3 yrs.					/			/
Phase II								
Seminars:			S	S	S*	S*	S*	
TA Missions:				M	M M	M M	M M	
Training manual:			Outline/Draft/Test/Revise/Final					
Video series:			Scenario/Shoot/Edit/Test/Final					
Reports/Publications:								
Implementation plans:	1	3	3	2				
Annual reports:		x	x	x	x	x	x	
Final report:								x
Field Notes:		1	3	3	2			
Honduras eval reports:		x	x	x	x			
Case Studies:						3	3	2
Book mms.:							Draft/Final	
Other LOP events:								
AID Committee Rev.:		x	x	x	x	x	x	x
Technical Steering Committee:		x	x	x	x	x	x	x

*If feasible, seminar conducted through a small cooperative agreement with an International Research Center.

1.5 Project Outputs

CTTA impact will be evident in five areas: 1) in the development of effective procedures for providing communication support for technology transfer; 2) in the production performance of the farmers in the pilot sites; 3) in the organizational changes induced in the collaborating institutions; 4) in the diffusion of the communication methodology to additional sites; and 5) in modification of the accepted norms for conducting extension among the international community.

These effects will be visible within the eight-year life of project, but the stream of production benefits initiated by CTTA is expected to continue for many years into the future. The specific outputs required during the life of project include:

1. Pilot activities at one primary site and eight collaborating sites to develop communication support methodology with:

   - o developmental procedures pertaining to message and communication strategy development; and

   - o networking procedures pertaining to farmer/research/extension/provider linkages.

2. Summative evaluation of each pilot activity.

3. In-service training of cadres of host country professionals and institutionalization of the procedures at each site.

4. Significant technology transfer at each site.

5. Diffusion seminars and technical assistance missions, estimated at four per region.

6. Instructional manual and videotape series for AID field officers and development professionals about project procedures.

7. Reports, publications and papers as scheduled in Figure 1.

1.6 Project Inputs.

The total AID contribution for CTTA activities over eight years is estimated at $19,433,000. The S&T project accounts for $7,295,000 of this sum; Mission projects account for $12,138,000. Table F provides an illustrative summary budget. Combined funding will be utilized to cover the costs of technical assistance, commodities, operating expenses, and diffusion activities. Host country contributions will consist of local salaries, office space, some operating expenses such as radio time, and other in-kind support.

Long Term Technical Assistance.

A total of 13.25 person years funded by S&T and 19.25 person years funded through Mission projects will be provided. Table A describes this by fiscal year and funding source. Table A$ provides an illustrative budget.

Short Term Technical Assistance.

A total of 26 person months funded by S&T and 63 person months funded through Mission projects will be provided. Table B describes this by fiscal year and funding source. Table B$ provides an illustrative budget.

Field Evaluation Personnel.

A Total of 55 person months funded by S&T and 16 person months funded through Mission projects will be provided. Table C describes this by fiscal year and funding source. Table C$ provides an illustrative budget.

Home Office Personnel.

A total of 490 person months of home office staff over eight years will be provided, according to the schedule in Table D. Table D$ provides an illustrative budget.

Operating Expenses and Equipment.

Operations at nine pilot sites: Local wages, travel, vehicle, maintenance, media production, expendable supplies.

Evaluations at nine pilot sites: Local wages, travel, expendable supplies.

Operations, including TA, at four Mission diffusion sites.

Home office expendables.

61

Computer time and related expendables.

Videotape and report production.

Travel.

Three basic categories of equipment will be purchased:

Vehicles:	1	12-passenger minibus (See Annex C)
	1	8-passenger minibus (See Annex C)
	1	Wagoneer/Blazer type (See Annex C)
	10	Four-wheel drive vehicles (pilot sites)

Communications equipment:

- o For the Honduran Research Foundation, as listed in Annex C.
- o For Pilot sites: Tape recorders, microphones, etc. for low-cost production/formative evaluation.

Office equipment.

A source origin waiver will be requested for vehicles and communication equipment as is customary according to the collaborating country Mission.

Table E$ provides an illustrative budget for operating expenses and equipment.

1.7 Beneficiaries.

Direct beneficiaries include farmers, their families, change agents, and institutions participating in the CTTA pilot projects.

Secondary direct beneficiaries include all purveyors of agricultural technology -- donors, host country governments, private sector providers and marketers -- who will be provided with cost effective means for communication support to technology transfer.

Indirect beneficiaries include farmers outside of the target areas of the project who will have better access to information as a result of the project.

Secondary indirect beneficiaries include other countries applying the procedures developed by the project.

A fuller discussion of project impact on beneficiaries is included in the Social Soundness Analysis.

70

TABLE A

LONG TERM TECHNICAL ASSISTANCE
(Person Years)

Site	Fiscal Year / Funding Source:	85 S&T	85 M	86 S&T	86 M	87 S&T	87 M	88 S&T	88 M	89 S&T	89 M	90 S&T	90 M	91 S&T	91 M
Honduras		.25	.5*	1	2	1	1.75	1	.5	.25	.25				
Ecuador				.25	.25	.5	.5	.5	.5	.5	.5				
Peru				.25	.25	.5	.5	.5	.5	.5	.5				
Swaziland				.25	.25	.5	.5	.5	.5	.5	.5				
3 additional sites						.75	.75	1.5	1.5	1.5	1.5	.75	.75		
2 final sites								--	1	--	2	--	2	--	1
Total		.25	.5	1.75	2.75	3.25	4	4	4.5	3.25	5.25	.75	2.75	--	1

*This includes TA designed to provide support for the Honduran Research Foundation.

TABLE B

SHORT TERM TECHNICAL ASSISTANCE
(Person Months)

Site / Fiscal Year / Funding Source:	85 S&T	85 H	86 S&T	86 H	87 S&T	87 H	88 S&T	88 H	89 S&T	89 H	90 S&T	90 H	91 S&T	91 H
Honduras	1	2*	2	18	2	9	2	3						
Ecuador			1	1	1	1	1	1						
Peru			2**	2**	1	1	1	1						
Swaziland			1	1	1	1	1	1						
3 additional sites					3	3	3	3	3	3				
2 final sites							--	4	--	4	--	4		
Total	1	2	6	22	8	15	8	13	3	7	--	4		

* This includes TA designed to provide support for the Honduran Research Foundation. USAID/Tegucigalpa is also providing 84 pms of administrative support staff (See Annex G: Scope of Work).

** This includes 1 pm for participation in the mission supported area-wide assessment in Huancayo.

TABLE C

FIELD EVALUATION PERSONNEL
(Person Months)

Site / Fiscal Year / Funding Source:	85		86		87		88		89		90		91	
	S&T	H	S&T	H	S&T	H	S&T	H	S&T	H	S&T	H	S&T	H
Honduras	--	2*	12	2	12	2	12	1	4	--				
Ecuador					.5	.5	.5	.5	.5	.5				
Peru					.5	.5	.5	.5	.5	.5				
Swaziland					.5	.5	.5	.5	.5	.5				
3 additional sites							1.5	1.5	1.5	1.5	1.5	1.5		
2 final sites									2	--	2	--	2	--
Total	--	2	12	2	13.5	3.5	15	4	9	3	3.5	1.5	2	--

* This includes evaluation support for the Honduran Research Foundation.

TABLE D

HOME OFFICE PERSONNEL
(Person Months)

Site Fiscal Year *	85	86	87	88	89	90	91	92
Key Personnel:								
Project Director	4	12	12	12	12	12	8	8
Associate Director Implementation	4	12	12	12	12	12	12	8
Associate Director Evaluation	4	12	12	12	12	12	12	8
Key Advisors:**								
Senior Agricultural Scientist	(1)	(3)	(3)	(3)	(3)	(1)	(1)	(1)
Senior Agricultural Economist	(1)	(3)	(3)	(3)	(3)	(1)	(1)	(1)
Support Staff:								
Project Assistant	4	24	24	24	24	24	24	24
Secretary	4	12	12	12	12	12	12	12
Short-term Prof. Assistance***	2	9	9	9	9	6	6	6
Total	22	81	81	81	81	78	74	66

*S&T and Mission funding for Core Contract Personnel will be broken out in Table D$.

**Will be provided by S&T/AGR Staff

***This includes pms required for TA Missions and diffusion seminars, additional to those provided by core staff.

2. COST ESTIMATE AND FINANCIAL PLAN

2.1 Cost Estimate.

The total cost of CTTA activities is estimated to be $19,433,000. The S&T project accounts for $7,295,000 of this sum; Mission projects account for $12,138,000. Additional host country contributions are not included in this sum, representing local salaries, office space, some operating expenses such as radio time, and other in-kind support.

2.2 Summary Budget Tables.

Tables A$ through E$ present illustrative budgets for FY 85-92 by S&T and Mission funding services for major project components:

- o Table A$: Long-Term Technical Assistance
- o Table B$: Short-Term Technical Assistance
- o Table C$: Field Evaluation Personnel
- o Table D$: Home Office Personnel
- o Table E$: Operating Expenses and Equipment

Table F$ presents a cumulative summary budget for all components.

2.3 Summary Obligation Schedule.

The following obligation schedule will meet the estimated project expenditures ($1=1000):

FY	85	86	87	88	89	90	91	92
S&T	400	1300	1300	1300	1200	800	700	295
Mission	500	1500	2000	3000	3500	1500	138	---

All Mission funding will come from already programmed Mission project sources. Mission funding for FY 85 will be provided by USAID/Tegucigalpa. Mission funding for FY 86 will be provided by USAID/Tegucigalpa, USAID/Lima. USAID/Quito, and USAID/Mbabane. S&T funding will be provided from the 103 and 105 appropriation accounts through S&T/ED, S&T/RD, and S&T/AG.

TABLE A8

LONG TERM TECHNICAL ASSISTANCE
(Person Years)

Site / Fiscal Year / Funding Source:	85 S&T	85 M	86 S&T	86 M	87 S&T	87 M	88 S&T	88 M	89 S&T	89 M	90 S&T	90 M	91 S&T	91 M
Honduras	.25	.5*	1	2	1	1.75	1	.5	.25	.25				
Ecuador			.25	.25	.5	.5	.5	.5	.5	.5				
Peru			.25	.25	.5	.5	.5	.5	.5	.5				
Swaziland			.25	.25	.5	.5	.5	.5	.5	.5				
3 additional sites					.75	.75	1.5	1.5	1.5	1.5	.75	.75		
2 final sites							--	1	--	2	--	2	--	1
Total	.25	.5	1.75	2.75	3.25	4	4	4.5	3.25	5.25	.75	2.75	--	1

(Illustrative Budget: $1=1000)

Site / Fiscal Year / Funding Source:	85 S&T	85 M	86 S&T	86 M	87 S&T	87 M	88 S&T	88 M	89 S&T	89 M	90 S&T	90 M	91 S&T	91 M
Honduras	30**	60	120	240	120	210	120	60	30	30				
Ecuador			30	30	60	60	60	60	60	60				
Peru			30	30	60	60	60	60	60	60				
Swaziland			35	35	70	70	70	70	70	70				
3 additional sites					105	105	210	210	210	210	105	105		
2 final sites							---	140	---	240	---	240	---	140
Total	30	60.	215	335	415	505	520	600	430	670	105	345	---	140

*Includes support Honduran Research Foundation
**Based on 120/yr for LAC; 140/yr for AFR and ASIA. All estimates are "loaded," to include benefits, overhead, etc.

TABLE D3

SHORT TERM TECHNICAL ASSISTANCE
(Person Months)

Site / Fiscal Year / Funding Source:	85		86		87		88		89		90		91	
	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M
Honduras	1	24	2	18	2	9	2	3						
Ecuador			1	1	1	1	1	1						
Peru			2**	2**	1	1	1	1						
Swaziland			1	1	1	1	1	1						
3 additional sites					3	3	3	3	3	3				
2 final sites							--	4	--	4	--	4		
Total	1	2	6	22	8	15	8	13	3	7	--	4		
(Illustrative Budget: $1-1000)														
Honduras	10***	20	20	180	20	90	20	30						
Ecuador			10	10	10	10	10	10						
Peru			20	20	10	10	10	10						
Swaziland			14	14	14	14	14	14						
3 additional sites			42	42	42	42	42	42	42	42				
2 final sites							--	56	--	56	--	56		
Total	10	20	64	224	96	166	96	162	42	98	--	56		

* This includes TA designed to provide support for the Honduran Research Foundation. USAID/Tegucigalpa is also providing 84 pms of administrative support staff (See Annex G: Scope of Work).

** This includes 1 pm for participation in the mission supported area-wide assessment in Huancayo.

*** Based on 10/pm for LAC; 14/pm for AFR and ASIA, "loaded."

TABLE C8

FIELD EVALUATION PERSONNEL
(Person Months)

Site / Fiscal Year / Funding Source:	85		86		87		88		89		90		91	
	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M	S&T	M
Honduras	--	2*	12	2	12	2	12	1	4	--				
Ecuador					.5	.5	.5	.5	.5	.5				
Peru					.5	.5	.5	.5	.5	.5				
Swaziland					.5	.5	.5	.5	.5	.5				
3 additional sites							1.5	1.5	1.5	1.5	1.5	1.5		
2 final sites									2	--	2	--	2	--
Total	--	2	12	2	13.5	3.5	15	4	9	3	3.5	1.5	2	--
	(Illustrative Budget: $1-1000)													
Honduras	--	20	120	20	120	20	120	10	40					
Ecuador					5	5	5	5	5					
Peru					5	5	5	5	5					
Swaziland					7	7	7	7	7	7				
3 additional sites							21	21	21	21	21	21		
2 final sites									14	--	14	--	14	--
Total		20	120	20	137	37	158	48	92	38	35	21	14	--

* This includes evaluation support for the Honduran Research Foundation.

** All estimates are "loaded."

TABLE D$

HOME OFFICE PERSONNEL
(Person Months and Illustrative Budget: $1=1000))

Site / Fiscal Year *	85		86		87		88		89		90		91		92	
	P.M.	$	P.M.	$	P.M.	$	P.M.	$	P.M.	$	P.M.	$	P.M.	$	P.M.	$
Key Personnel:																
Project Director	4	26	12	80	12	80	12	80	12	80	12	80	8	52	8	52
Associate Director Implement	4	20	12	60	12	60	12	60	12	60	12	60	12	60	8	40
Associate Director Evaluation	4	20	12	60	12	60	12	60	12	60	12	60	12	60	8	40
Key Advisors:**																
Senior Agricultral Scientist	(1)		(3)		(3)		(3)		(3)		(1)		(1)		(1)	
Senior Agricultural Economist	(1)		(3)		(3)		(3)		(3)		(1)		(1)		(1)	
Support Staff																
Project Assistant	4	12	24	80	24	80	24	80	24	80	24	80	24	80	24	80
Secretary	4	8	12	24	12	24	12	24	12	24	12	24	12	24	12	24
Short-term Prof. Assistance **	2	2	9	90	9	90	9	90	9	90	6	60	6	60	6	60
Total	22	106	81	394	81	394	81	394	81	394	78	364	74	336	66	296
Mission portion of funding:																
Honduras		40		60		60		60								
Ecuador, Peru, Swaziland				45		90		90		90						
3 sites						45		90		90		45				
2 sites								60		60		60				
S&T TOTAL		66		289		199		94		154		259		336		296
Mission TOTAL		40		105		195		300		240		105		--		--

*All estimates are "loaded."

**Will be provided by S&T/AGR Staff.

***This includes pms required for TA Missions and diffusion seminars, additional to those provided by core staff.

TABLE E$

OPERATING EXPENSES AND EQUIPMENT
Illustrative Budget: ($1=1000)

Site / Item	Fiscal Year * / Funding Source	85 S&T	85 M	86 S&T	86 M	87 S&T	87 M	88 S&T	88 M	89 S&T	89 M	90 S&T	90 M	91 S&T	91 M	92 S&T	92 M
Honduras:																	
Operations		40	15	80	30	80	30	80	15		40**						
Equipment		100	200	50	58	--	--	--	--		--						
Ecuador, Peru, Swaziland:																	
Operations				30	30	90	90	90	90	75	75						
Equipment				45	45	--	--	--	--	--	--						
3 sites:																	
Operations***						30	150	90	300	90	300	--	300				
Equipment						45	600	--	600	--	--	--	--				
2 sites:																	
Operations***								--	100	--	300	--	300	--	200		
Equipment								--	400	--	400	--	--	--	--		
Mission "add on" sites****										--	1,000	--	--	--	--		
Travel: Worldwide & Honduras		20	10	15	15	15	15	10	10	20	--	40	--	40	--	20	
Ecuador, Peru, Swaziland				22	22	30	30	22	22	15	15	--	--	--	--	--	
3 sites						22	22	30	30	22	22	15	15	--	--	--	
2 sites								15	15	20	20	20	20	15	15	--	
Home office expendibles		10	--	25	--	25	--	25	--	25	--	25	--	25	--	20	
Computer time/expendibles			--	25	--	25	--	50	--	50	--	50	--	50	--	--	
Video productions/manual								40	--	50	--	50	25	50	25	--	
TOTAL		170	225	292	200	362	937	452	1,582	367	2,172	200	660	180	235	40	--

*Operation and equipment for both implementation and evaluation are included together. All estimates are "loaded."

**Total cost of one regional seminar.

***Includes 10,000/yr. toward one regional seminar/site.

****As diffusion activities generate greater mission participation, this funding will permit a minimum of four additional Missions to develop similar communication support activities CTTA contract TA.

TABLE F$

ILLUSTRATIVE SUMMARY BUDGET
($1=1000)

Site / Item	Fiscal Year * / Funding Source	85 S&T	85 M	86 S&T	86 M	87 S&T	87 M	88 S&T	88 M	89 S&T	89 M	90 S&T	90 M	91 S&T	91 M	92 S&T	92 M
TABLE A$	Long-term TA	30	60	215	335	415	505	520	600	430	670	105	345	--	140		
TABLE B$	Short-term TA	10	20	64	224	96	166	96	162	42	98	--	56	--	--		
TABLE C$	Evaluation	--	20	120	20	137	37	158	48	92	38	35	21	14	--		
TABLE D$	Home Office	66	40	289	105	199	195	94	300	154	240	259	105	336	--	296	--
TABLE E$	Operations/Equip.	170	225	292	200	362	937	452	1,582	367	2,172	200	660	180	235	40	--
TOTAL		276	365	980	884	1,209	1,840	1,320	2,692	1,085	3,218	599	1,187	530	375	336	--
Contingency 10%		28	37	98	88	121	184	132	269	108	322	60	119	53	38	34	--
TOTAL		304	402	1,078	972	1,330	2,024	1,452	2,961	1,193	3,540	659	1,306	583	413	370	--
Inflation 4%		12	16	44	40	55	83	63	124	55	152	36	69	34	36	27	--
TOTAL		316	418	1,122	1,012	1,385	2,107	1,515	3,085	1,248	3,692	695	1,375	617	449	397	--

TOTAL ALL YEARS:

S&T	7,295
Mission	12,138
Total	19,433

2.4 Recurrent Cost Analysis

Most of the costs of this project pertain to the R&D nature of developing a methodology for the first time and to the worldwide nature of the effort. Technical assistance is the major cost. Operating expenses, less the cost of special developmental tasks and evaluation, are minimal. The costs of new local salaries and new equipment will vary from country to country, but the project relies primarily on the reorganization, reallocation, and more efficient use of existing equipment and production budgets and on the in-service training of existing personnel.

New, recurring costs should be expected, however. These will pertain primarily to the volume of media use and training and the introduction of on-going evaluation and monitoring procedures for technology transfer activities. These new costs will vary significantly from country to country depending on local production fees; free or pay access to radio time; the use of in-house vs. contracted facilities; nation-wide vs. localized coverage; and the level of the existing "extension aids" budgets.

Expenditures for a similar communications support project in the health sector, the Mass Media and Health Practices Project,shows an increase of approximately $50,000 to $100,000 per year of recurrent costs for The Gambia and Honduras, respectively. Free vs. pay radio time and variation in local production fees account for the difference. But there are other factors that bear on the interpretation of these costs.

In Honduras, for example, an existing budget for radio time had not been monitored and had been largely wasted; budgets for an "educational component" were tucked away in large vertical program budgets (eg., malaria, water and sanitation) and not efficiently used. Thus, over a three-year period, the education unit in Honduras grew significantly, and its program significantly increased its impact through the use of exisiting resources, reorganized to be more efficiently used, and a modest increase in annual cost. To date, host country clients of the Health project seem pleased with the benefit to cost ratio as they experience it. Effectively performing organizational units provide needed services at very low cost, replacing ineffective units spending only marginally less money.

Local costs will be tracked at each site under the CTTA project, and cost effectiveness will be assessed. It is the judgement of A.I.D. and host country officials at the presently identified sites that new recurrent costs are not substantial and that the reform of existing activities is worth their cost.

3. IMPLEMENTATION PLAN

3.1 Country Selection Criteria.

Countries participating in CTTA will require:

- o A strong A.I.D. agriculture program with an interest in shared funding for communications activity;
- o Clearly identified technologies -- new or underutilized -- which imply a significant role for change in farmer practices in increasing productivity;
- o An agricultural research base that can provide a continued flow of new and adapted technology;
- o Commitment from the host country government to further develop its communications activities for technology development and transfer;
- o A pilot site with available, appropriate technologies and institutions, personnel, communications infrastructure, and research linkages capable of sustaining CTTA activity and contributing to CTTA objectives.

The countries which have been considered for participation in CTTA in some detail, namely Honduras, Ecuador, Peru, and Swaziland, have significant A.I.D. projects in the agricultural sector with technology transfer components and fulfill these selection criteria. As additional countries are considered, contractor, A.I.D., and host country staff will assess the feasibility of participation using these criteria prior to developing a letter of agreement and country implementation plan. Both the final selection of each country and each country plan will require approval of the cognizant technical officer.

3.2 Contract Plan. A single contractual instrument, either a cooperative agreement with a stringent substantive involvement clause or contract, will be competitively awarded in FY 85 to implement all CTTA activities except three diffusion seminars to be implemented by International Research Centers. Because of the technical and operational complexity of this activity, no restrictions on open competition are planned. Because CTTA requires an operational orientation to multiple overseas sites with complex implementation schedules, including procurement, and must provide quick response to field needs and Mission requests, the RFP will encourage multiple party proposals as well as sub-contracts with small businesses and minority firms for some project components such as the production of instructional materials. If feasible, small cooperative agreements will be awarded to International Research Centers to conduct three diffusion seminars. A representative from USAID/Tegucigalpa and an expert from outside of A.I.D. will be invited to participate in the A.I.D. proposal review process.

3.3 Key Contractor personnel.

Key contractor personnel include:
- Project Director
- Associate Director for Implementation
- Associate Director for Evaluation
- Field Office Director (9)
- Associate Field Office Director for Evaluation (Honduras)

Additional contractor staff for the Research Foundation in Honduras are described in Annex C.

The project directors can be generally described as having a Ph.D. or equivalent plus field experience (home office) or an M.A. or equivalent plus field experience (field offices) in the area of development communications, agriculture and agricultural communications, social marketing, instructional design, related social science disciplines or evaluation. Since the procedure and methodology to be developed under CTTA represent a new application of experiences in these fields, directors cannot be recruited on the basis of prior experience with CTTA methodology or on the premise that they will simply replicate methodology developed elsewhere.

While offerors will be expected to have institutional experience in these related areas, offerors will not be expected to have existing staff already expert in the methodology to be developed under this project since this will be the innovative contribution of the CTTA project. However, offerors will be expected to have staff and prior experience in the areas critical to developing the methodology including development communications, agriculture and agricultural communication, social marketing, instructional design, related social science disciplines and evaluation. Offerors will be expected to have experience in recruiting candidates from these background areas.

In addition to firm nominations for home office staff, the offerors will be expected to propose firm nominations for the positions in Honduras and to propose serious candidates for the positions in Ecuador, Peru, and Swaziland. During the early life of project, home and field staff at these sites will develop expertise in CTTA procedures and methodology as they are developed. Cross-site field visits and initial international CTTA conferences will foster this staff development. Field directors recruited for later participating countries will be briefly interned at existing sites or recruited from existing sites. Later in the life of project, these directors will provide a pool of expertise for diffusion of the methodology.

Offerors should have an established reputation in development communications, agriculture and agricultural communications, and related disciplines so that the award can be made to a contractor who can be expected to continue to work in this area after the life of project and to be a resource in providing expertise to other country programs both during the later years of the project and beyond the life of project.

3.4 FY 85 Schedule of Project Events.

The following schedule of events is anticipated:

o	April, 1985:	RFP for CTTA award released.
o	July, 1985:	Cooperative agreement or contract signed; fielding of first Honduras resident advisor.
o	Sept. 1, 1985:	Submission of Honduras implementation plan. Scheduling of key FY 86 events for Ecuador, Peru and Swaziland.
o	Dec. 31, 1985:	USAID/Tegucigalpa funded initial procurement completed.

3.5 Management responsibility.

S&T/ED will assign a half time project officer to manage CTTA in collaboration with S&T/RD, S&T/AG and participating Missions as described further in Section 4, the Monitoring Plan.

S&T and Missions will share responsibility for CTTA contract activity in the field. The involved Mission officer will have day-to-day authority over contract staff and in-country, operational decisions. S&T/ED will have authority over decisions that impact the overall objectives of the S&T project, particularly the world-wide research and development and diffusion activities of the contracts. The contractor will be required to use an accounting system capable of assigning expenditures according to funding source to provide a data base for the financial reports to Missions required by the monitoring plan (See Section 4.1).

3.6 Relation to other A.I.D. projects.

As described elsewhere, CTTA will collaborate with an A.I.D. Mission project at each site. In each case, Mission participation is expected to require only funds already programmed for existing projects.

This project will maintain a relationship with other AID/W projects working with related problems. Special attention will be given to the INTERPAKS project: "Technology Development, Transfer and Feedback Systems in Agriculture: An Operational Systems Analysis" with the International Program for

Agricultural Knowledge Systems (INTERPAKS) at the University of Illinois. Linkage with the Farming Systems Research and Extension (FSR/E) project with the University of Florida will also be important in order to keep abreast of the state of the art in FSR/E methodologies, particularly those pertaining to farmer managed on-farm trials.

INTERPAKS is a five-year project aiming to develop a conceptual model for agricultural technology development and transfer. As part of this task, INTERPAKS will be testing their analysis against successes and failures found in some 16 case studies world-wide in the expectation that "a comparative examination might create a model or options useful to national research and extension practitioners, policy makers, international donors, and farmers" (INTERPAKS Newsletter, 1984: p.1). CTTA should gain from the conceptually broader picture being developed by INTERPAKS and at the same time provide INTERPAKS with data for further refinement of its conceptual model. A representative from the A.I.D. management team for INTERPAKS will join the A.I.D. advisory committee for Communication for Technology Transfer in Agriculture.

This project will also influence and benefit from other A.I.D. projects in the areas of development communications and social marketing. These include other S&T/ED projects: the Clearinghouse on Development Communications; Studies in Facilitating Learning; and Mass Media Health Practices; and the S&T/RD project on Small Farmer Market Access.

4. MONITORING PLAN

CTTA outputs and the schedule of project activities in Figure 1, p. 57 will provide the basis for monitoring progress. The monitoring plan will consist of several elements.

4.1 A.I.D. Management.

S&T/ED will assign a half-time project officer to manage CTTA. S&T/RD and S&T/AGR will assign a project officer to meet regularly with the S&T/ED manager and advise on major management decisions, particularly those related to project inputs and the expenditure of resources from these collaborating offices. The involved Mission officer will advise the S&T/ED manager concerning major management decisions pertaining to each Mission contributing project.

Bi-annual financial and activity reports concerning participating Mission projects will be sent by the contractor directly to S&T/ED and each participating Mission. The CTTA contract will be tracked against expenditures by project number in the contractor's accounting system to provide a basis for these reports.

An A.I.D. annual management review will evaluate progress and advise on major future decisions. Members of this A.I.D. review committee will include the S&T/ED manager, the designated S&T/RD and S&T/AGR officers, Regional Bureau and PPC representatives and, as feasible, involved Mission officers.

4.2 Technical Steering Committee.

A technical steering committee will advise A.I.D. and the contractor on the overall direction and utilization of CTTA. The National Science Foundation, through the S&T RSSA, will be requested to convene this committee once yearly. Members will be recognized experts in disciplines important to CTTA. A.I.D. review committee members and contractor staff will participate in these meetings. Representatives from other donor agencies and the International Research Centers will be invited as occasional contributing observers.

4.3 Reporting Requirements.

Implementation plans for each site, annual reports, and a final report will be required according to the schedule in Figure 1, p. 57. The following reporting requirements are additional:

- A brief trip report for all international travel.
- A proceedings for every international seminar and NSF steering committee meeting and a report for every technical assistance Mission.
- A brief quarterly management report describing progress, problems and up-coming decisions and actions to be taken.

All reports are to be sent directly from the contractor to the S&T/ED, S&T/RD and S&T/AGR designated officers and the involved Mission and/or Regional Bureau officer. The S&T officer is to be sent five copies of each report.

Thirty copies of each major report will be sent directly to S&T/PI and twenty copies to S&T/ED for A.I.D. internal distribution. Major reports include annual reports, the final report, field notes, proceedings, evaluation reports and case studies.

4.4 Project Review and Evaluation.

The quarterly management report will be reviewed with S&T/ED, S&T/RD and S&T/AGR office directors. The annual report and recommendations of the A.I.D. review committee will be reviewed with the Agency Directors for Human Resources and Food and Agriculture. NSF steering committee recommendations will be reviewed with the Agency Directors and the Senior Assistant Administrator for Science and Technology.

5. PROJECT ANALYSES

5.1 Financial and Economic Analysis.

It is appropriate to invest AID resources in this project because the problem of inadequate communications support for technology transfer in agriculture, as described above, is negatively impacting on the rate of return on investments in technology development and because this AID intervention can lead to a solution of the problem.

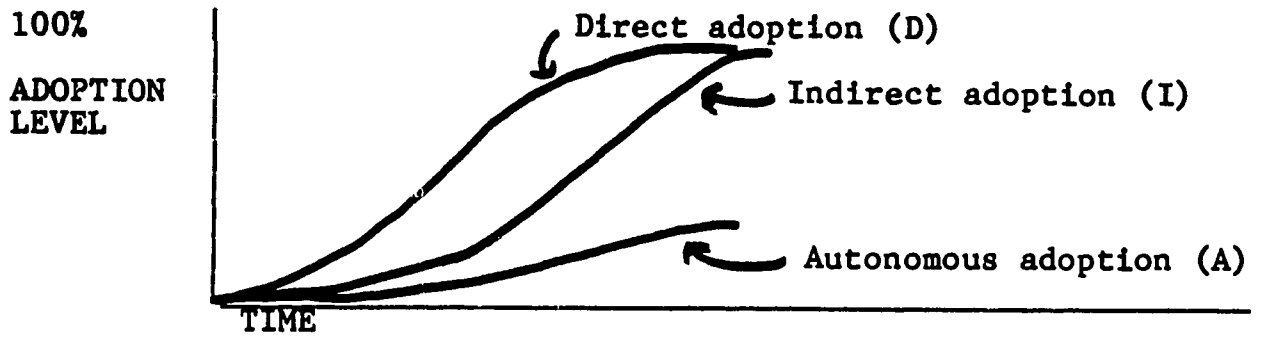
An R&D effort is proposed, to develop procedures for a cost-effective application of communications methods and technologies to support the timely transfer of appropriate technology to large numbers of farmers. It is advantageous to AID to bring a limited set of central resources to bear more fully on this problem than to rely exclusively on disparate, bilateral investments.

Major costs of the project are: AID personnel time and funds for technical assistance, commodities, evaluation, and diffusion activities. Major benefits are: a more effective technology transfer approach for host countries and donors to apply beyond the life of project; improvement in the technology transfer systems of countries participating in the project.

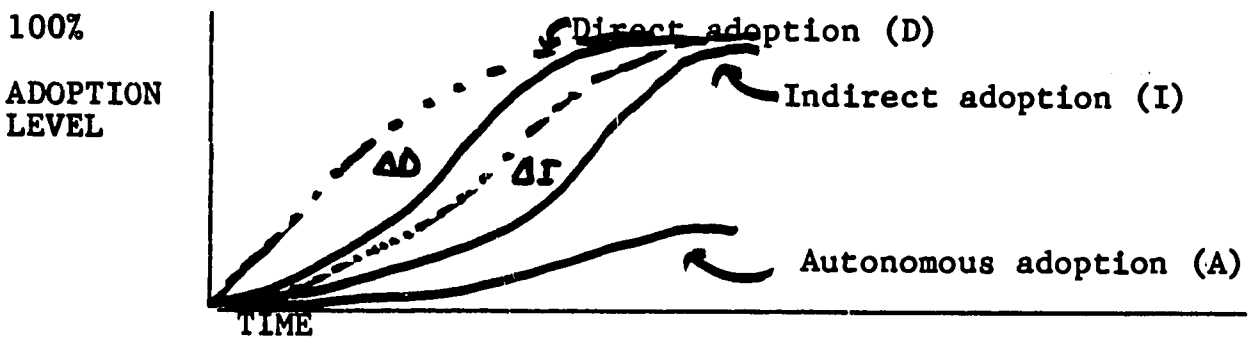
The Project Paper will follow the cost effectiveness approach to the economic analysis.

Several projects in Latin America which have generated new and appropriate technologies for small-scale farmers, have also stimulated high rates of adoption. Financial analyses of these projects have shown internal rates of return over 60%. Communications technologies played a limited role in some of these projects, but it is hypothesized here that more sophisticated, improved techniques, properly targeted will generate even greater returns. It is also suggested that communications support may cause some technologies to be adopted which would otherwise have remained neglected.

The diagram below shows the adoption rate extrapolated from five years of data from the Caqueza project, and verified in the tenth year of the project. Some of the impetus for the CTTA project came from a year by year activity analysis of Caqueza identifying where and how improved concentrated communication support would have accelerated the adoption process.



Appropriate ~~used~~ communications support would move curves (I) and (D) to the left as show below.



The change in (I) multiplied by all of the farmers except the direct recipients of credit would account for most of the measured benefits, increasing indirect benefits almost 30%. Direct benefits would increase by approximately 10%. These benefit increases must then be compared to the direct cost of providing the communication services (not the development and testing costs), in order to determine the internal rate of return. Data for these estimates in the countries participating in the project will be obtained when site election is made and baseline evaluation are collected.

Experience in the health sector in applying communications methodology such as is being developed in the CTTA project demonstrated dramatic rates of change in public health practices over a 12-18 month time period (See Annex I). These experiences in conjunction with experience from prior use of communications in agriculture lead to the expectation that communications support will effect significant improvement in the final number of adoptors and the rate of adoption across an indefinite series of newly introduced technologies. This benefit will outweigh the cost of doing the CTTA project and represents an on-going benefit in so far as the methodology developed is expected to influence how technology transfer is conducted in future years after the life of project.

5.2 Social Soundness Analysis.

Beneficiaries. Direct beneficiaries will include farmers, their families, change agents, and institutions participating in the site-specific interventions. Secondary beneficiaries will include all purveyors of agricultural technology -- donors, host country governments, private sector providers and marketers -- who will be provided with cost effective means for communication support to technology transfer.

Indirect beneficiaries include farmers outside of the target areas of the project who will have better access to information as a result of the project. Secondary indirect beneficiaries include other countries applying the procedures developed by the project.

Participation. A.I.D./W and Mission staff, host country professionals, and U.S. experts outside of A.I.D. are participating in the design of this project. In addition to these, U.S. contractors, host country institutions and host country farmers will participate in the implementation of the project. A.I.D. personnel, U.S. contractors, U.S. experts outside of A.I.D., and host country professionals will participate in the evaluation of the project.

Increasing access. The use of mass media in campaigns aimed at entire populations has consistently operated to increase access to information for less-privileged segments of those populations. It is expected that the use of mass media in this project will have a democratizing impact on information related to agricultural technology. At project sites where the participation of women in technology transfer systems is minimal or inadequate, this project can be expected to have a significant, positive impact on getting information to women and increasing their knowledge of agricultural innovations.

The role of women. Each pilot project section of the Project Paper includes a brief description of the role of women in local agriculture. This role apparently shifts from minimal physical involvement in farming tasks, coupled with significant influence on household budget and expenditures, to more complete involvement in all aspects of farming, including physical tasks, in areas of high male migration due to seasonal off-farm employment.

CTTA methodology is particularly appropriate for dealing with this variability in the role of women, as it is attempting to accommodate variability across all major factors in the local environment. It is expected that the procedures introduced by CTTA to investigate on-farm conditions and to understand the exact nature of the target audience in relation to technology transfer will increase the level of local knowledge about the role of women in agriculture and increase the effectiveness with which such knowledge is applied.

Cultural adaptation. CTTA will succeed or fail on the basis of the quality of its procedures to accommodate local variability, including local cultures. These procedures, as discussed earlier in the Project Paper, are intended, in part, to translate recommendations from on-farm trials for local adoption through study of specific local practices and concepts pertaining to existing and new technology.

Cross-cultural transfer. Success with country-specific adaptation of the communications methodology across nine diverse sites will lead to the generalizable communications methodology, applicable worldwide. Specific messages, posters, training manuals, etc. will not be transferred, of course. These must be developed site by site as cultures, the agricultural technology itself, and the mix of communications channels shift. Rather, it is the set of procedures for developing effective communications support--including the messages, posters, training manuals, etc.--for technology transfer at any given site that is at the heart of the communications methodology being developed by CTTA. These procedures include village-level investigation and formative evaluation components to insure the cultural appropriateness of what is done at any given site. Thus, while the methodolgy is intended to be culturally adapted at individual sites, it is also being developed to be transferred cross-culturally in all appropriate A.I.D.-recipient countries.

5.3 Administrative analysis.

CTTA can be implemented successfully by the involved institutions. Within A.I.D., S&T/ED will provide .5 persons year equivalent of professional staff time per project year to manage the project. This will be augumented by staff inputs from S&T/RD, S&T/AG, and participating Mission officers.

The management capability of the U.S. contractor will be one criterion of their selection. The selected contractor must have a record of successful management of projects of similar technical and operational complexity.

The management capabilities of host-country institutions identified to date are adequate to maintain participation in CTTA. Operations units, equipment, and staff have been identified at each site which are capable of successfully supporting CTTA activity. Similar feasibility criteria will be applied to collaborating institutions at sites to be selected later in the life of the project.

5.4 Technical Analysis.

Communication has historically been an important part of agricultural extension. It is impossible to think of transferring technology or obtaining farmer feedback to adapt technology without communication. Yet CTTA will go beyond what has been done in applying communications methods and media in three respects:

91

- o CTTA will develop procedures for producing messages and mass communication strategies better able to accommodate the problem of variability than previous efforts. These procedures will include the applications of development communication and social marketing methods, similar to those developed in the health and population sectors, which are remarkable for their behavioral and product specificity and have not yet been systematically applied in the agricultural sector.

- o CTTA will develop improved procedures for information exchange among farmers, extension workers, researchers, and other providers, based on task-oriented relationships with highly specific outcomes related to technology transfer activities.

- o CTTA will establish these procedures as on-going institutional operations, moving beyond shorter-term "campaign" approaches to the use of mass communications.

An extended discussion of relevant prior experience is included as Annex E. More extensive literature reviews of the role of communications in agriculture by Dr. Howard Ray (1984) and Dr. Rober Hornik (1982) are available upon request.

The pilot site sections included in the Project Paper provide descriptions of USAID and host-country ability to participate in CTTA in terms of A.I.D. project portfolio, institutional capacity, staff and equipment availability, and appropriate, adapted technology which could benefit from CTTA intervention.

In light of these discussions and review of this PP by NSF and A.I.D. technical review committees, S&T/ED finds the project methodology technically sound.

5.5 Environmental Analysis.

CTTA proposes to provide information to large numbers of farmers about improved farming practices, including the correct use of fertilizers and pesticides and soil conservation and water management methods. If it succeeds in its objective, CTTA impact on problems such as soil erosion, water pollution, and unsafe use of chemicals will be positive.

Consistent with A.I.D. Handbook 3, App. 2D, Para. 216.2(c), CTTA will not require an initial environmental examination, since it falls under the criteria 216.2(c) (iii) (2) and (ii). These criteria exempt "educational, technical assistance, or training programs except to the extent such programs include activities directly affecting the environment (such as construction of facilities)" and "controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas and carefully monitored."

qv

AID 1020-20 (1-78)

ANNEX A
PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 85 to FY 92
Total U.S. Funding S&I: $7,295,000
Missions $12,138,000
Date Prepared: March, 1985

Project Title & Number: Communication for Technology Transfer in Agriculture (CTTA): 936-5826

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes: To develop the use of educational technology and communications to support development objectives across sectors.	**Measures of Goal Achievement:** 1. Implementation of the approach and procedures developed under this project to LDCs not originally included in this project. 2. The acceptance of the approach by other donor agencies and development professionals.	1. Requests for TA resulting from project publications and seminars. 2. Incorporation of the approach in Mission projects and in recommendations by other donor agencies to their field reps.	**Assumptions for achieving goal targets:** 1. The availability of appropriate agricultural technology and collaborating institutions at participating sites. 2. Continued interest on the part of development professionals in the use of communications to support tech. transfer in agriculture. 3. That the use of improved communication support can make a difference in technology transfer at the sites selected.
Project Purpose: To develop and demonstrate a more effective communication support system for technology transfer in agriculture.	**Conditions that will indicate purpose has been achieved: End of project status.** 1. The development of procedures for the effective use of communication for technology transfer in agriculture. 2. The integration of these procedures in the on-going research/extension systems of participating LDCs. 3. The completion of diffusion activities and distribution of publications/manual/videotape.	1. Program management data. 2. Evaluations at each site which include in-depth interviews with members of the target audience and agricultural workers to assess project implementation knowledge, practices and yields and to assess institutionalization of the procedures.	**Assumptions for achieving purpose:** 1. That the commitment and ability to participate in the project and provide collaborating professionals and equipment remains constant. 2. That natural disasters, economic failure, or war to not prevent the conduct of project interventions and evaluations. 3. That the R&D produces successful procedures. 4. That proj. impact is successfully measured.
Outputs: Impact will be evident: 1) in the development of effective procedures for providing communication support for technology transfer; 2) in the production performance of the farmers in the pilot sites; 3) in organizational changes in the collaborating institutions; 4) in the diffusion of the communication methodology to additional sites; and 5) in modification of the accepted norms for for conducting extension among the international community. Specific outputs include: 1. Pilot activities at 9 sites to development a more effective communication support system for tech. transfer. "Developmental" and "networking" procedures will be produced. 2. Summative evaluations of these 9 activities. 3. In-service training and institutionalization of procedures at each site. 4. Significant technology transfer at each site. 5. Diffusion seminars and TA Mission. 6. Instructional manual and videotape series. 7. Reports, publications and papers.	**Magnitude of Outputs:** 1. The interventions will be of at least 3-years duration in 9 countries. 2. 3 to 5 HC personnel will receive in-service training at each site; key procedures will be institutionalized at each site. 3. 12 diffusion seminars/TA Missions will be conducted; 1 instructional manual & 3 videotapes: at least 20 publications & papers presenting	Same as above.	**Assumptions for achieving outputs:** 1. Full-time participation of key HC counterpart personnel. 2. Cooperation of line personnel of collaborating organizational units. 3. Availability of HC media production and distribution facilities; radio air time.
Inputs: Funding and TA to conduct and evaluate interventions in 9 LDCs and provide in-service training required. Funding to conduct the diffusion activities.	**Project Funding** **Implementation Target (Type and Quantity)** S&I / Mission FY 85: 400 / 500 FY 86: 1300 / 1500 FY 87: 1300 / 2000 FY 88: 1300 / 3000 FY 89: 1200 / 3500 FY 90: 800 / 1500 FY 91: 700 / 138 FY 92: 295 / ---		**Assumptions for providing inputs:** 1. The obligation of A.I.D. funding according to plan. 2. The selection and continued functioning of competent contractors and TA staff.

A N N E X B

DOCUMENTATION OF SUPPORT

HONDURAS

SLT/ED

AGENCY FOR INTERNATIONAL DEVELOPMENT

UNITED STATES OF AMERICA AID MISSION TO HONDURAS
AMERICAN EMBASSY
TEGUCIGALPA, HONDURAS

Ref No 0123-01
Dr. Meyer
Action STT/ED
prepare response for Dr. Brady's signature
Due Date 1/30
Copies To: Bailey, Zapata, Rabin, Bertsch, Ch

January 11, 1985

Dr. Nyle Brady
Senior Assistant Administrator
Bureau for Science and Technology
Agency for International Development
Washington, D.C. 20523

Dear Nyle,

Best wishes for the New Year. Dr. Anthony Meyer of your Bureau and Drs. Howard Ray and John Axtell representing the National Science Foundation have completed their Project Paper development visit for the Communications for Technology Transfer in Agriculture Project.

I am attaching copies of letters to me from the Minister of Natural Resources, Ing. Miguel Angel Bonilla, and the Interim Director of the Honduran Agricultural Research Foundation, G.C. Millensted, expressing their support and enthusiasm for the S&T project and their wish to participate in it.

As you know, the Mission Project Paper for the Foundation describes its technical and funding relationship to the proposed S&T Project. The S&T project provides us with an excellent opportunity to begin Mission involvement with the extension/communications area. The proposed pilot project in Danli, will afford an opportunity for the Ministry of Natural Resources and the Foundation to collaborate in a specific set of technology transfer objectives, while strengthening their capacity as institutions to apply communications more effectively to this end.

The S&T project responds to an immediate need to bridge the activities of the Ministry and the Foundation, while also involving the newly organized Federation of Agricultural Producers and Exporters and the regional research station at Danli. I fully anticipate that this S&T effort will lead to future Mission project activity in the agricultural communications/extention area.

I wish to extend my support for your approval of this project. As I have told Dr. Meyer, we would like to begin both the Research Foundation and Danli elements of the proposed S&T project as early as this spring.

I want to thank you again for your past assistance with our Research Foundation Project and hope that you will come and visit the Foundation early in the New Year.

Sincerely,

Anthony J. Cauterucci
Mission Director

JAN 23 1985

FUNDACION HONDUREÑA DE INVESTIGACION AGRICOLA

(F. H. I. A.)

LA LIMA, HONDURAS, CENTRO AMERICA

January 9, 1984

Mr. J. Cauterucci
Mission Director
Agency for International Development
Tegucigalpa, Honduras

Dear Mr. Cauterucci:

I want to express support for the idea of a pilot communication project in the Danlí region which AID/Washington is planning in conjunction with the Ministry of Natural Resources which would also involve collaboration with the Foundation. In light of the upcoming agreement between the Ministry of Natural Resources and the Foundation, it will be extremely useful to work together in a region like Danlí. The region has a variety of farm situations and will provide an opportunity for our scientists to have rapid entry into the field trial phase of our program in that region.

Through discussions with Dr. Anthony Meyer of AID/Washington, I am aware of the Bureau for Science and Technology's interest in supporting such a pilot activity. I understand that the contractor involved will be the same contractor providing the Foundation with its technical services related to communications. I appreciate AID/Washington's offer of assistance in this regard, to parallel and complement your Office of Rural Development's support for our Foundation.

I look forward to this new possibility for collaboration.

Yours sincerely,

G. C. Millensted

G. C. Millensted
Interim Director

GCM/yb

TELEFONOS: 56-24 70/56-22 44/58-20 78 TELEX 8304—UFTROPRFS—HO

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SECRETARIA DE ESTADO
EN EL DESPACHO DE
RECURSOS NATURALES
REPUBLICA DE HONDURAS, C. A.

OFICIO S- 043
Tegucigalpa, D.C., 8 de Enero de 1984.

Señor
Anthony Cauterucci
Director AID/Honduras
Ciudad

Estimado Señor Director:

A principios del año pasado, la Misión AID a solicitud nuestra, contrató los servicios del Doctor Howard Ray para realizar un estudio sobre la posibilidad de desarrollar el Departamento de Comunicación Agrícola de la Secretaría de Recursos Naturales, a fin de facilitar y ampliar la transferencia de tecnología.

Como resultado de este estudio, se recibió un informe en el cual se propone la implementación de un Proyecto Piloto en Danlí que estaría enlazado con la Fundación Hondureña para la Investigación Agrícola. Sobre el particular, deseo expresar mi apoyo al Proyecto Piloto en referencia, tomando en cuenta además, la firma del Convenio próximo a suscribirse entre esta Secretaría y la Fundación Hondureña para la Investigación Agrícola.

La región de Danlí ha sido seleccionada para el proyecto en mención, por sugerencia del Consultor Ray ya que dicha región cuenta con eficiente personal de extensión agrícola, agricultores debidamente organizados y un selecto equipo de técnicos en su Centro de Investigación Agrícola, que están generando tecnologías apropiadas, pero que no ha sido posible difundirlas con la suficiente amplitud, a pesar de nuestro interés y de la Federación de Agricultores y Exportadores en esa región, dada las limitaciones actuales en el campo de comunicación agrícola.

Estoy seguro que el uso de metodologías de comunicación en un sentido más amplio, causaría un beneficioso impacto para la transferencia de tecnología en Danlí y en otras regiones del país, al aplicar este mismo enfoque en forma progresiva.

SECRETARIA DE ESTADO
EN EL DESPACHO DE
RECURSOS NATURALES
REPUBLICA DE HONDURAS, C. A.

Es de importancia que durante 1985 además del Proyecto Piloto en Danlí, se contemplara un apoyo para el establecimiento y funcionamiento de un programa de radio a nivel nacional que permitiera divulgar y promover el desarrollo agrícola en todo el país. Este programa podría ser producido en Tegucigalpa por el Departamento de Comunicación Agrícola, con la asesoría de personal especializado en la materia y apoyado por la Fundación Hondureña de Investigación Agrícola.

Hemos sostenido pláticas con el Doctor Anthony Meyer de la AID de Washington, y tengo entendido que la Oficina de Ciencia y Tecnología tiene el propósito de apoyar la implementación del Proyecto Piloto en Danlí, por lo cual agradecería su colaboración en esta nueva posibilidad de desarrollo.

Sin otro particular me suscribo de usted, reiterándole las muestras de mi más alta consideración y respeto.

MIGUEL ANGEL BONILLA REYES
MINISTRO

cc. Ing. Wilfredo Díaz Arrazola
Director General de Agricultura

cc. Lic. Ramiro Sierra Rodríguez
Jefe del Depto. de Comunicación Agrícola

ECUADOR S&T/ED

UNITED STATES AID MISSION TO ECUADOR

INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
QUITO, ECUADOR

RDO-85-121

February 13, 1985

Ref No: 1828-03
Action: Prepare response for L. Brady signature
Due Date: 3/8
Copies To: Brady, Cupitson, Sprague, Robins, Bertrand

Dr. Nyle Brady
Senior Assistant Administrator
Bureau for Science and Technology
AID/Washington

Dear Dr. Brady:

As you are aware, the elections in Ecuador have brought important positive changes in GOE orientation to the private sector and, in turn, in our AID Mission Program. In agriculture, we are redesigning our major technology transfer project to involve producer associations more directly with research and the diffusion of technology. We are also emphasizing private sector involvement in our present institutional support projects.

I am pleased to say that the S&T Communications for Technology Transfer in Agriculture Project fits well with this new emphasis. The project affords an opportunity to assist institutions that we already support as well as forge improved links to marketing associations and improve the flow of new technology to the producer. In this regard, we discussed a possible linkage between the Communications for Technology Transfer in Agriculture Project and one of several Mission Projects, including Rural Technical Transfer System. I would like to point out at this time that our only source for financial participation would be through one of our on-going, bilateral projects. This would necessarily entail obtaining approval from the respective GOE entity, and given the current status of the projects, we have identified for potential linkages, we feel that it is too early to determine conclusively whether collaboration between the S&T and Mission projects will be possible, but we are optimostic about a linkage. I bring this up, so that the appropriate actions can be incorporated into the design of the Project Paper.

FEB 28 1985

INTERNATIONAL MAIL ADDRESS:
U. S. AID Mission to Ecuador
c/o American Embassy
Quito - Ecuador

U. S. MAIL ADDRESS:
USAID - Quito:
Agency for International Development
Washington, D. C. 20523

CABLE ADDRESS: USAID QUITO
Phone: 521100

99

May I take this opportunity to express this Mission's appreciation for the quality of technical services S&T continues to provide, and for the January 14 - 17 visit of Tony Meyer, John Axtel, and Howard Rey.

Sincerely,

Orlando Llenza
Director

ACTION COPY

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Department of State

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AIDAC

FOR S&T/EDUC, AMYER

E.O. 12356: N/A

SUBJECT: PERU PARTICIPATION IN COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE (CTTA), PROJECT NO. 936-5826

REF: MILLER, MYER, RAY AND AXTELL CONVERSATIONS

1. AS DISCUSSED DURING JANUARY VISIT OF MYER, RAY AND AXTELL, MISSION INTERESTED IN POSSIBLE PARTICIPATION IN SUBJECT PROJECT. WE THINK THAT COMMUNICATION STRATEGIES DEVELOPED UNDER CTTA COULD HELP THE NATIONAL INSTITUTE FOR AGRICULTURAL RESEARCH AND EXTENSION (INIPA) IMPROVE THE COMMUNICATION LINKAGE BETWEEN RESEARCHERS AND EXTENSIONISTS AND EXTENSIONISTS AND FARMERS. WE ALSO FEEL THAT CTTA COULD HAVE THE POTENTIAL TO PROVIDE COMMUNICATIONS STRATEGIES FOR TECHNOLOGY TRANSFER IN OTHER USAID AGR/RD PROJECTS SUCH AS ALTO HUALLAGA, PLAN MERIS, SOIL AND WATER CONSERVATION, AND CENTRAL SELVA PROJECTS.

2. MISSION HAS RECEIVED WRITTEN CONFIRMATION FROM INIPA THAT THEY WOULD LIKE TO PARTICIPATE IN THE PROJECT AND THAT THE PILOT SITE COULD BE EITHER TARAPOTO OR HUANCAYO AS DISCUSSED.

3. AS INDICATED EARLIER, WE WILL BE DEVELOPING A NEW ACTIVITY IN AGRICULTURAL RESEARCH AND EXTENSION WITH THE PERUVIAN GOVERNMENT WHICH WILL TAKE OFFICE IN JULY. THIS NEW ACTIVITY COULD BEGIN IN MID-1986 BUT IT IS IMPOSSIBLE FOR US TO PROGRAM FUNDS AT THIS TIME IN SUPPORT OF CTTA UNDER NEW ACTIVITY.

4. AS THE CTTA TEAM OBSERVED IN JANUARY, INIPA IS IN A POSITION TO BENEFIT IMMEDIATELY FROM THE ASSISTANCE CONTEMPLATED UNDER THE CTTA PROJECT AND THEREFORE WOULD LIKE THE PERU COMPONENT TO BEGIN IN 1985 IF POSSIBLE. AT THE SAME TIME, BECAUSE OUR CURRENT ACTIVITY WITH INIPA IS WINDING DOWN, WE ARE NOT IN A POSITION TO PROVIDE FINANCIAL SUPPORT IN 1985. ACCORDINGLY GIVEN OUR FUNDING SITUATION, THE INTEREST TO GET STARTED ASAP ON ALL SIDES AND THE HIGHLY EXPERIMENTAL NATURE OF THE TECHNOLOGY, WE SUGGEST THAT CTTA PROVIDE TOTAL SUPPORT IN 1985, WITH THE MISSION PICKING UP 50 OF THE COSTS IN 1986, AT THE LEVELS DISCUSSED DURING THE REFERENCED CONVERSATIONS, THROUGH A COMBINATION OF PROJECT AND PD&S FUNDS. MISSION CONTRIBUTION WOULD CONTINUE AT THE DISCUSSED LEVELS IN THE YEARS 1987-89 DEPENDING OF COURSE ON THE AUTHORIZATION AND IMPLEMENTATION OF ADDITIONAL ACTIVITIES IN AGRICULTURAL RESEARCH EXTENSION AND EDUCATION. PLEASE ADVISE.

JORDAN

PERU

Action: AM

cc: JU

MAR 8 1985

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ACTION COPY

Department of State

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AIDAC

FOR S&T/ED:AMEYER, 6030 SA-18

E.O. 12356: N/A
SUBJECT: COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE (CTTA) PROJECT, 936-5826

REFS: (A) DRAFT PP FOR 936-5826; (B) STATE 44898

1. THE FOLLOWING ARE SOME GENERAL COMMENTS ON THE SUBJECT'S PROJECT PROPOSAL CONTAINED IN REFTEL (A):

- A. A DEFINITE NEED IS PERCEIVED FOR THIS TYPE OF PROJECT, AND IT IS HOPED THAT SWAZILAND WILL BE ONE OF THE COLLABORATING SITES. THE CTTA ACTIVITY SHOULD, HOWEVER, COMPLEMENT -- NOT SUPERSEDE -- THE AGRICULTURAL INFORMATION ASPECTS OF SWAZILAND'S STORRING [illegible] RESEARCH AND EXTENSION TRAINING PROJECT (CSR&ET), 645-0212.

- B. MISSION HAS POUCHED A COPY OF THE PROJECT PAPER FOR SUBJECT DESIGNERS' INFORMATION ON THE PURPOSE AND GOALS OF THE CSR&ET PROJECT AND ALSO DISPATCHED A DRAFT COPY OF THE RECENTLY CONDUCTED PROJECT EVALUATION.

- C. WHILE THE CTTA FOCUS WILL BE ON THE TRANSFER OF SPECIFIC TECHNOLOGY, THE CSR&ET PROJECT WILL CONTINUE TO PLACE EMPHASIS ON THE UPGRADING THE MINISTRY OF AGRICULTURE AND COOPERATIVE'S (MOAC) INFORMATION SECTION'S CAPABILITY TO PROVIDE MORE GENERALIZED COMMUNICATION'S SUPPORT TO A VARIETY PROGRAMS AND FUNCTIONS.

- D. CTTA AND CSR&ET HAVE SOME COMMON PROJECT OBJECTIVES THAT CAN BE CAPITALIZED ON IF COORDINATED I.E. THE PROVISION OF IN-SERVICE TRAINING AND INSTITUTIONALIZATION. THE CSR&ET PROJECT SHOULD FOCUS ON THE SWAZILAND ARENA WHILE THE CTTA SHOULD SEEK TO DEVELOP MORE UNIVERSAL STRATEGIES FOR TECHNOLOGY TRANSFER IN AGRICULTURE.

- E. THE CTTA PROJECT SHOULD CONCENTRATE ON THE MOVING OF SPECIFICS TO THE CLIENT, IN OTHER WORDS THE DEVELOPMENT OF THE INFORMATION FLOW PACKAGE AND THE CSR&ET MAJOR CONCERN SHOULD BE TRAINING AND THE DEVELOPMENT OF THE INDIVIDUALS POTENTIAL AND BUILDING OF THE UNIT'S EFFICIENCY.

- F. IT IS INDICATED IN THE CTTA PROJECT PAPER THAT CSR&ET WILL PURCHASE FOUR MOBILE UNITS FOR INFORMATION TRANSFER, THIS IS NO LONGER PART OF THE PROJECT'S PLAN. FYI - THE ISRAEL GOVERNMENT HAS ALREADY PURCHASED ONE SUCH UNIT FOR THE MINISTRY'S TRAINING SECTION.

2. SORRY MISSION WAS UNABLE TO RECEIVE HOWARD RAY PER

MBABAN 00876 081445Z 9177 085819 AID5656
REQUEST REFTEL (A). TRUSTING THIS LOCAL REACTION TO THE DRAFT PROJECT PAPER WILL ASSIST THE DESIGN EFFORT. THERE IS ROOM FOR ADDITIONAL EFFORT IN THIS ALL IMPORTANT AND NEGLECTED AREA OF COMMUNICATION.
LAMIGUERA

SWAZILAND

Action: A 1 1
cc: JLL

101

MALAWI CTTA

UNCLASSIFIED

Department of State

INCOMING TELEGRAM

PAGE 01 LILONG 01147 181036Z 0754 092341 AID1316
ACTION AID-00

ACTION OFFICE FDA-01
INFO AAA-00 AFR-01 ARDA-04 STAS-02 SAST-01 AFDA-01 AGRI-01
STR-01 PPLD-01 MAST-01 STHW-01 ...

INFO LOG-00 AF-07 CIAE-00 EB-08 DODE-00 ...

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FM AMEMBASSY LILONGWE
TO SECSTATE WASHDC PRIORITY 5177

UNCLAS LILONGWE 01147

AIDAC

FOR A. MEYER, S&T ED

E.O. 12356: N/A
SUBJECT: CTTA PROJECT (936-5820)

1. HAVE REVIEWED CTTA PROPOSAL AND MISSION SEES HIGH DEGREE OF COMMUNALITY WITH THE EXTENSION ACTIVITIES OF MALAWI AGRICULTURAL RESEARCH AND EXTENSION PROJECT (612-0215) WHICH IS NOW BEING DESIGNED. WE WOULD LIKE TO EXPRESS OUR INTEREST IN PARTICIPATING IN THE PROPOSED S&T CTTA PROJECT (936-5820). WHILE MISSION PROJECT WILL SUPPLY ITS LONG TERM TECHNICAL ASSISTANCE WE WOULD WELCOME SHORT-TERM ASSISTANCE FOR COMMUNICATIONS RELATED INVESTIGATIONS AND CASE-STUDY TYPE EVALUATIONS. WE WOULD ALSO WELCOME PARTICIPATION IN INTERNATIONAL SEMINARS, WORKSHOPS AND CONFERENCES ORGANIZED BY CTTA.

2. IN RETURN, THE PROJECT WOULD BE WILLING TO PROVIDE INFORMATION COPIES OF REPORTS AND STUDIES GENERATED WHICH COULD BE USED BY S&T TO EXTEND ITS INFORMATION BASE ON AGRICULTURAL COMMUNICATION IN AFRICA.

3. CONSISTENT WITH THE CTTA PROJECT STRATEGY, THE GOM IS CONSIDERING MZUZU AGRICULTURAL DIVISION (MADI) AS THE SITE FOR TESTING MASS COMMUNICATION METHODOLOGIES. THE PRIMARY COLLABORATING INSTITUTIONS WILL BE THE EXTENSION AIDE BRANCH, MOA AND THE MADI. THE DEPARTMENT OF AGRICULTURAL RESEARCH IS IDENTIFYING IMPROVED TECHNOLOGIES TO BE USED IN EXTENSION ACTIVITIES. THESE WILL BE SUPPLEMENTED BY NEW TECHNOLOGIES VERIFIED BY THE ADAPTIVE RESEARCH COMPONENT OF THE SAME PROJECT. THE DETAILS CONCERNING THE AGRICULTURAL COMMUNICATION ACTIVITIES PROPOSED IN THE MISSION PROJECT, AND POSSIBLE COLLABORATION WITH THE CTTA PROJECT [illegible] WILL BE DISCUSSED WITH GOVERNMENT OF MALAWI [illegible] A CABLE WILL BE SENT TO YOU THEREAFTER INDICATING THE OUTCOME OF THAT MEETING.
ADAMS

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102

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INDONESIA

UNITED STATES OF AMERICA
AGENCY FOR INTERNATIONAL DEVELOPMENT
AMERICAN EMBASSY
JAKARTA, INDONESIA

Letter No.

JAN 29 1985

Mr. Anthony Meyer
Office of Education
Bureau for Science and Technology
Agency for International Development
Washington D.C. 20523

Dear Mr. Meyer:

Thank you for sending me a copy of the PID entitled "Communication for Technical Transfer in Agriculture."

The purpose of this letter is to indicate informally our interest in the subject and in the proposed approach in the PID. We are involved in a number of projects which directly relate to this concern. For example, we are involved in an extensive project to support agriculture research. We also have activities related to irrigation development, secondary crops production, conservation and farming systems development in upland areas and fisheries, as well as a variety of agriculture and rural development programs directed at improving local government capacity to plan and manage projects.

Your proposal has several attractive features. We believe that the collaboration between research, extension and the private sector are important. Also, the stress on baseline information, evaluation and monitoring in order to determine changes in farmer behaviour and income are all extremely important.

We will be interested to follow the progress of this project as you move into the Project Paper. Also, we would like to receive copies of any additional case studies or other relevant materials used in development of new project.

Sincerely Yours

Richard A. Cobb
Chief
Office of Agriculture
and Rural Development

103

MOROCCO CTTA

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Department of State

INCOMING TELEGRAM

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FOR ANTHONY MAYER, S&T/ED

E.O. 12356: N/A
SUBJECT: COMMENTS ON PID FOR COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE

1. USAID HAS REVIEWED THE PID FOR THE COMMUNICATIOH FOR TECHNOLOGY TRANSFER PROJECT (936-5826). SINCE THE PID DOES NOT SPECIFY IN DETAIL THE ACTIVITIES TO BE UNDERTAKEN, USAID HAD SOME DIFFICULTY IN DETERMINING EXACTLY WHAT THE PROJECT MIGHT ENTAIL OF DIRECT INTEREST TO MOROCCO PROGRAM. (NOTE, HOWEVER, THAT THE COPY OF THE PID RECEIVED BY USAID WAS INCOMPLETE.)

2. USAID UNDERSTANDS THAT THE PROJECT WILL DEVELOP PROCEDURES FOR STUDYING FARMER BEHAVIOR AND MOTIVATION, DEVELOPING EFFECTIVE MESSAGES AND MASS COMMUNICATION STRATEGIES TO REACH FARMERS AND ENHANCING COMMUNICATION AMONG RESEARCH, EXTENSION, THE PRIVATE SECTOR AND FARMERS. UNDER PHASE I, THE PROJECT WILL CONDUCT ACTIVITIES IN HONDURAS, ECUADOR, AND PERU. UNDER PHASE II (FY 87-88), SIX ADDITIONAL COLLABORATIVE SITES WILL BE SELECTED, IN AN EFFORT TO ADAPT THE QUOTE PROCEDURES UNQUOTE DEVELOPED IN PHASE I TO DIFFERENT SETTINGS. PHASE II MAY BE OF INTEREST TO MOROCCO.

3. FOR EXAMPLE, USAID IS CURRENTLY FUNDING THE DRYLAND AGRICULTURE APPLIED RESEARCH PROJECT (608-0136), WHICH WILL CONTINUE UNTIL SEPTEMBER 1988. THE PURPOSE OF THIS PROJECT IS TO ESTABLISH AN APPLIED AGRONOMIC RESEARCH PROGRAM WHICH WILL ADAPT EXISTING TECHNOLOGY TO LOCAL CONDITIONS AND TRAIN MOROCCAN STAFF TO OPERATE THE PROGRAM AND TRANSMIT THE RESULTS TO FARMERS. THIS PROJECT CONTAINS AN INNOVATIVE APPROACH TO EXTENSION IN THE FORM OF A FEEDBACK SYSTEM LINKED TO FARMING SYSTEMS RESEARCH.

4. USAID WOULD APPRECIATE OBTAINING A COMPLETE COPY OF THE PID FOR THE COMMUNICATION FOR TECHNOLOGY TRANSFER PROJECT. A COPY OF THE PROJECT PAPER WHEN IT IS AVAILABLE, AND COPIES OF REPORTS AND FINDINGS GENERATED BY THE PROJECT OVER THE NEXT TWO YEARS. USAID WOULD ALSO APPRECIATE RECEIVING A COPY OF EACH OF THE TWO LITERATURE REVIEWS ON THE ROLE OF COMMUNICATIONS IN AGRICULTURE REFERRED TO IN THE PID (ONE BY HOWARD RAY AND THE OTHER BY ROBERT HORNIK).
REED

Cotter - ! TM
cc: Jc

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MAR 25 1985

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104

ANNEX C

SCOPE OF WORK:
USAID/Tegucigalpa PIO/T

PROJECT 522-0249
Honduran Agricultural Research Foundation

TABLE OF CONTENTS

A. Statement of Work

1. Overall objectives and description of work
   a. Technical assistance
   b. Procurement

2. Technical services to be provided by the Contractor
   a. Technical assistance
      1) Long term
      2) Short term
   b. Procurement
      1) Communication equipment
      2) Library acquisitions
      3) Vehicles

3. Reporting Requirements
   a. Implementation Plan
   b. Interim and final reports

B. Illustrative Budget

1. Line item summary

2. Budget detail

C. Specific Terms of Reference for Technical Advisors

1. Long term advisors
   a. Senior Agricultural Communication Specialist
   b. Foundation Development Specialist

2. Short term advisors
   a. Evaluation Specialist
   b. Print Media Specialist
   c. Audio Media Specialist
   d. Graphic Arts Specialist
   e. Video Production Specialist
   f. Communication Hardware Specialist
   g. Training Specialist
   h. Information System Specialist

D. Communication Equipment and Vehicles

A. STATEMENT OF WORK

Honduras Agricultural Research Foundation (FHIA)
Communication and Development Division (DCD)

1. OVERALL OBJECTIVES AND DESCRIPTION OF WORK

The contractor will provide short and long term technical assistance and procure equipment in support of the organization and development of a five year period of the Communication and Development Division (DCD) of the Honduran Agriculture Research Foundation.

A. Technical Assistance

Through technical assistance as specified in Section II below the Contractor will assist the DCD Director in planning and implementing the Foundation's communication and development program. A major activity throughout the LOP will be to foster collaboration with the NR in implementation of the Dauli region pilot project in agricultural communications. In addition the principal activities of the contractor include:

- o assistance in planning and organizing the DCD, with particular emphasis on the DCD Communication Unit, Information Services System, and Development and Public Relations Sections;
- o development of detailed specifications for equipment itemized in Attachment D, making needed minor additions, deletions or modifications in the list of items in collaboration with the DCD Director and as approved by the FHIA Executive Director and USAID;
- o design and conduct of communication-related studies and evaluation;
- o special planning equipment installations; organization and development of the DCD communication unit;
- o design and conduct of a multi-media system communication interventions, further applying the methodological approaches described and developed for the CTTA pilot project;
- o development and management, in collaboration with the Ministry of Natural Resources (MNR) of a comprehensive communication network of key organizational participants;
- o training of DCD staff;

- establishment and development of an information services system;
- short and long range planning for developing and maintaining an adequate financial support base to sustain FHIA growth;
- detailed documentation of progress, problems and achievements;
- conduct of one international seminar pertaining to the diffusion of Dauli pilot project experience (estimate $40,000).

B. Procurement

The contractor will procure the equipment specified in Attachment D as it may be amended, in accordance with current AID procurement regulations _____ and our reviews for certain equipments such as some video, photographic and optical items will be required where equivalent items of U.S. manufacture are not available.

2. TECHNICAL SERVICES TO BE PROVIDED BY THE CONTRACTOR

A. Technical Assistance

Areas of specialization and levels of effort (expressed as person months) of technical assistance required under this PIO/T are indicated below:

	1985	1986	1987	1988	Total
1. Long term					
a. Sr Agr Communication Spec.	6	12	12	6	3
b. Foundation Development Spec.	4	12	8	--	24
Subtotal - long term	10	24	29	6	60
2. Short term					
a. Evaluation Spec.	2	2	2	1	7
b. Radio/Audio Spec.	--	3	2	1	6
c. Graphic Data Spec.	--	3	1	1	5
d. Print Media Spec.	--	3	1	--	4
e. Video Production Spec.	--	3	1	--	4
f. Communication Hardware Spec.	2	1	--	--	3
g. Training Spec.	1	3	2	--	6
h. Information Systems Spec.	--	2	2	--	4
Subtotal - short term	5	20	11	3	39
	(4)			(4)	
TOTAL T.A.	15	44	31	9	99

The above areas of specialization, person-months and timing are illustrative. The contract shall have flexibility, within total person-month limitation, to adjust, modify, delete and/or add

technical assistance assignments in accordance with an approved Project Implementation Plan, or with written approval of the FHIA Executive Director and USAID/H.

All technical advisors pertaining to the Research Foundation communication unit will reside in San Pedro Sula/La Lima area. I will be headquartered at the FHIA in La Lima. Specific terms of reference for each technical advisor are given in Attachment C.

B. Procurement

Procurement required under this PIO/T will include communication equipment, vehicles and library acquisitions.

1. Communication equipment

An itemized list of communication equipment items to be procured by the Contractor is given in Attachment D. This list will be reviewed and revised as appropriate, with FHIA and USAID/A approval during the period in which detailed specifications are being prepared. Commodities procured with Project funds must conform to U.S. Source and Origin Requirements as specified in the Project Authorization and Project Agreement. Source and origin waivers will be granted only for items not manufactured in the U.S.

2. Vehicles

Three vehicles, described in Attachment D, are to be procured by the Contractor. These vehicles must conform to U.S. Source and origin requirements as specified in the Project Authorization and Project Agreement.

3. Library Acquisitions

Titles of journals, periodicals and books to be procured by the Contract will be developed by the librarian in consultation with Foundation staff. Source and origin waivers will be requested to permit procurement of critical journals and books not published in the U.S.

The estimated cost of library procurement is as follows:

	1985	1986	1987	1988	1989	Total
Journals/	5,000	15,000	10,000	10,000	50,000	45,000
Books	10,000	30,000	15,000	10,000	5,000	70,000
Total	15,000	45,000	25,000	20,000	10,000	115,000

3. REPORTING REQUIREMENTS

A. Implementation Plan

The Contractor, DCD Director and (for activities involving the MNR, including the pilot project) MNR Communication Unit Director will jointly prepare a detailed life of project implementation plan to be submitted to the FHIA Executive Director and USAID/A for approval no later than six months after arrival in Honduras of the Contractor Chief of Party. copies will also be submitted to the MNR and AID/S&T/ED for information and concurrence.

B. Interim and Final Reports

The Contractor will submit semi-annual reports to the Foundation, USAID/H and AID/S&T/ED. Each report shall be presented in two parts: (a) report of activities and progress made during the reporting period and planned for next period; and (b) financial report, including accounting by line item of expenditures incurred during the reporting period and project expenditures for next period. The annual report will also include updates and recommended revisions in the Project Implementation Plan.

B. ILLUSTRATIVE BUDGET

I. Line Item Summary	$
Salaries and Wages	
Benefits	
Travel/Transportation/Allowances	
Other Direct Costs	
Equipment	
Contingency (10%)	
Total Direct Costs	
Indirect Costs	
Total Costs	

C. SPECIFIC TERMS OF REFERENCE FOR TECHNICAL ADVISORS

A. Long-term Advisors

1. Senior Agricultural Communications Specialist

(a) Qualifications: Doctoral level degree or equivalent experience with a minimum of three years cumulative experience in the establishment, organization and operation of multi-media agricultural communication production units and programs in LDCs (including at least one year in Latin America); familiarity with all media, communication-related investigation and evaluation, and communication networking; experience in planning, scheduling and production in various media to provide effective communication support to technology transfer programs; fluency in Spanish (FSI S-3, R-3 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance in the establishment and organization of the Foundation Communication Unit;

(ii) Provide assistance in establishing linkages with the Ministry of Natural Resources Communication Unit and developing a viable two-way communication network;

(iii) Provide assistance in the development of long range and annual work plans for the Foundation Communication Unit;

(iv) Assist the Division Director in developing a coordinated strategy for development of the communication and Development Division and its programs;

(v) Assist in establishing and utilizing the Division's Advisory Committee and Internal Coordination Committee;

(vi) Provide assistance in the development of an integrated system for developing message content based on studies of audience characteristics and demand, selection of media to be used to obtain maximum reinforcement, production of materials on a schedule synchronized with audience needs and interest, pre-testing and impact evaluation of materials produced, and use of feedback to improve program content and quality of presentation;

(vii) Train Foundation communication Unit Staff and assist in training MNR Communication staff in use of systems, and prepare operational manuals relating to same;

(viii) Serve as Contractor Chief of Party.

2. Foundation Development Specialist

(a) Qualifications: Minimum of bachelors degree (masters desirable) in a relevant discipline with a minimum of five years cumulative experience in the field of fund raising/public relations; experience in LDCs, especially Latin America, desirable; experience with research institutions, especially agricultural or development related, also desirable; fluency in Spanish (FSI S-2, R-2 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance in the establishment of organization of the Foundation Development and Public Relations Unit;

(ii) Provide assistance in the development of long range and annual work plans for the Unit;

(iii) Assist the Unite Director in developing a strategy for identifying and contacting potential donors on a national, regional, and international level;

(iv) Assist in developing national and international public relations programs to spread the message about the Foundation to both potential donors and users;

(v) Assist in coordinating fund raising and public relations efforts with the Friends of Central America Agriculture Organization in the United States.

2. Short-term advisors: All short-term advisors will report to and be coordinated by the Senior Agricultural Communications Specialist who will be designated chief of party.

1. Evaluation Specialist

(a) Qualifications: Minimum of a masters degree (Ph.D. preferred) in rural biology or other relevant discipline with training and experience in survey techniques and

other formative and summative evaluation methodology; a minimum of three to five years of LDC (including at least one year in Latin America) experience in planning, conducting, analyzing and interpreting communication-related studies and evaluation; fluency in Spanish (FSI S-3, R-3 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance for preparation of strategy and long range plan for development of a comprehensive communication-related investigation and evaluation program, including baseline studies of socio-economic and cultural characteristics of target audiences and pre-testing and impact evaluation of materials produced by the Foundation Communication Unit;

(ii) Provide assistance in designing, conducting and analyzing initial studies;

(iii) Assist in developing collaboration with the Ministry of Natural Resources Communication Unit in evaluation activities;

(iv) Train Foundation Communication Unit staff in evaluation methodology;

(v) Prepare evaluation manuals for use by evaluation staffs of the Foundation and Ministry of Natural Resources.

(vi) Provide assistance in establishing coordination of evaluation activities with other components of the Foundation Communication Unit, and with other units of the Division.

2. <u>Print Media Specialist</u>

(a) Qualifications: Minimum of master degree in related discipline; competence and experience in writing and editing texts for agriculturally related publications directed toward specific target audiences; capability to compose texts for offset printing, including photographs and illustrations; experience in operation and management of a small offset print shop; a minimum of two years cumulative experience in Latin America on similar assignments; fluency in Spanish (FSI S-3, R-3 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance in the preparation of a strategy and long range plan for development and production of targeted printed materials to provide effective support to all Division programs;

(ii) Assist in developing collaborative arrangements with the Ministry of Natural Resources Communication Unit for joint publications, and use of the Ministry's print shop for printing materials beyond the capacity of the Foundation print shop;

(iii) Supervise installation of the Foundation print shop equipment and organization of its operations;

(iv) Train Foundation and Ministry Communication Unit technical liaison personnel and writer/editors;

(v) Prepare reference manuals on writing, editing, composition, and print shop organization and operation;

(vi) Participate in training events for Foundation staff, extension workers, etc., to teach them how to improve their skills in writing for specific audiences;

(vii) Assist in integrating the use of print media into an integrated multi-media communication support program.

3. Audio Media Specialist

(a) Qualifications: Minimum of masters degree in related discipline; competence and experience in planning, scheduling and production of time phased audio materials direct toward rural audiences with emphasis on radio; capability and experience in installation and operation of audio equipment; at least one year cumulative experience in Latin America on similar assignments; fluency in Spanish (FSI S-2, R-2 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance for preparation of a strategy and long range plan for the planning, scheduling and production of rural radio programming and other audio materials to provide effective support to all Division programs;

(ii) Assist in developing collaborative arrangements with the Ministry of Natural Resources Communication Unit for Production and dissemination of radio programming and other audio materials to their intended audiences;

(iii) Supervise construction of audio studios and installation and testing of equipment;

(iv) Develop operational system for audio production in both the studio and the field;

(v) Train Foundation and Ministry of Natural Resources Communication Personnel in planning, scriptwriting, scheduling, production, and use of radio and other audio materials;

(vi) Prepare reference manuals related to the above.

(vii) Participate in training events for Foundation staff extension workers and agricultural communication personnel to teach them how to do effective interviews for use in radio programming, and to produce radio programs tailored to the interests and needs of targeted audiences;

(viii) Assist in integrating the use of radio and other audio materials into an integrated multi-media support program.

4. Graphic Arts Specialist

(a) Qualifications: Minimum of bachelors degree (masters preferred) in related discipline; competence and experience in preparation of graphs, charts and original art for use in publications, flipcharts, posters, flyers, etc., that are consistent with the visual literacy of the intended audience and the degree of sophistication most appropriate for that audience; capability and experience in silkscreen reproduction; experience in training artists in agricultural communication production units; at least one year of cumulative experience in Latin America on similar assignments; fluency in Spanish (FSI S-2, R-2 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance in the preparation of a strategy and long range plan for the planning, scheduling and production of graphic materials to provide effective support to all Division programs;

(ii) Assist in developing collaborative arrangements with the Ministry of Natural Resources Communication Unit for production and use of graphic materials, and for reproduction in the Ministry print shop of materials beyond the capacity of the Foundation Communication Unit facilities;

(iii) Supervise installation of the silkscreen and graphic arts materials;

(iv) Develop an operational system for planning, scheduling and production of graphic arts materials, including reproduction by silkscreen;

(v) Train Foundation and Ministry artists to the extent possible, to upgrade their competence in the techniques and skills required to prepare the range of graphic materials necessary to meet the needs of the Division, and in reproduction by silkscreen;

(iv) Prepare reference manuals for foundation and Ministry graphic arts staff;

(vii) Participate in training events for foundation staff, extension workers, etc., to teach simple graphic principles and techniques that can be used by non-artists to prepare simple graphics for use in the field with localized information an audiences;

(viii) Assist in integrating the use of graphic materials into an integrated multi-media support program.

5. <u>Video Production Specialist</u>

(a) Qualifications: Minimum of bachelors degree or equivalent (masters preferred) in related discipline; competence and experience in planning, scheduling and production of videotapes targeted for specific audiences, including farmers and rural families; capability and experience in installation and operation of video equipment; at least one year cumulative experience in Latin America on similar assignments; fluency in Spanish (FSI S-2, R-2 or equivalent).

(b) Specific Scope of Work: Same as that described in No. 3 above for the Audio Media Specialist, expect substitute video for audio.

6. Communication Hardware Specialist

(a) Qualifications: Minimum of bachelor degree (masters preferred) in a related discipline; competence and experience in developing specifications and identifying sources for all types of equipment required for the Foundation communication Unit; capability to insure compatibility of equipment items where required, and to develop itemized equipment lists for each of the required media systems; some experience in LDCs and minimal fluency in Spanish desirable.

(b) Specific Scope of Work:

(i) Prepare itemized list(s) of all equipment required for the Foundation Communication Unit;

(ii) Prepare detailed specifications and estimated costs for all equipment to be procured, and identify potential sources of supply. (Preference to be given to equipment for which service, spare parts and suppliers are available in Honduras. However, all commodities procurred with Project Funds must conform to the U.S. Source and Origin requirements as specified in the Project authorization and Project Agreement except in cases for which waivers for purchase of non-U.S. manufacture are granted.)

(iii) Determine need (if any) for additional or modified physical facilities in relation to equipment.

7. Training Specialist

(a) Qualifications: Minimum of a masters degree (Ph.D. preferred) in Agricultural or Extension Education or related discipline; competence and extensive experience as an agricultural trainer and in planning, organizing and coordinating training programs; at least two years of experience in similar assignments in Latin America; fluency in Spanish (FSI S-3, R-3 or equivalent).

(b) Specific Scope of Work:

(i) Provide assistance in the organization and establishment of the Foundation Training Unit to carry out its designated functions;

(ii) Provide assistance in the development of a long range plan for the foundation Training Unit;

(iii) Provide assistance in the development of the technical exchange and in-service training functions of the Foundation Training Unit;

(iv) Train Foundation Training Unit and Ministry of Natural Resources staff in training techniques and methods and in the evaluation of training events;

(v) Prepare a basic training manual for the Foundation Training Unit operations;

(vi) As appropriate, serve as a trainer in training events;

(vii) Assist in establishing coordination with other Division Units, the Research Division, the Ministry of Natural Resources and other potential collaborators or participants in Foundation training programs.

8. Information System Specialist

(a) Qualifications: Minimum of bachelor degree (masters preferred) in computer science or related discipline; competence and experience in designing, installing and operating computerized information systems using microcomputers; reasonable knowledge about agriculture preferable; fluency in Spanish (FSI S-2, R-2 or equivalent).

(b) Specific Scope of Work:

(i) Design on microcomputer-based information systems appropriate to the needs of the Foundation and prepared detailed specifications and cost estimates for required equipment;

(ii) Prepare qualification and responsibility statements for the Foundation Library and Information Systems Unit Information Systems Offices position;

(iii) Supervise procurement and installation of equipment and bring it into operation;

(iv) Prepare operational manual for the information management systems;

(v) Train FHIA and MNR Information Systems staff in the operation and management of the system.

D. COMMUNICATION EQUIPMENT AND VEHICLES

1. Communication Equipment

	Est. Unit Cost ($)
Electric typewriter - IBM Selectric III	945
Manual typewriter - Facit manual	425
Electronic composer (Word processor)	3,500
5150174PC, with 64K Ram, 2 disk drives (360 KB), serial interface keyboard;	
1504900 Monitor, Printer, adapter interface for IBM-E200D;	
5151001 Monochrome Display, green phosphor;	
6024120 Program, DOS 2.1 (Disk Operating system);	
CLND-C1234 memory chips (Each chip adds an extra 64K--should have 3 for each PC):	
Cables for printers;	
5152002 printer with graphics;	
Photocopier - Xerox 1035	5,000
Mimeograph - A. B. Dick 565	2,000
Electronic stencil cutter - Electric Stencil 592	1,450
Audio studio	
Atari 5050 B reel-to-reel recorder	6,000
TEACH Model 2 mixer	
Technics SL 1200 turntable	
Slatton 680 EL cartridge	
Electro Voice BV 635A microphone	
KAG mike stands model 201	
Cabeling setup	
Robbins bulk tape eraser	
EV Century mono speaker	
AKG K-141 headset	
Morantz PM 220 cassette recorder	
Hitachi AV 150	
Maxell ____ C-90 cassette tapes	
Ampex 406 _____ 2000 pancake real tapes (10 pancakes)	
180 plastic reels and boxes	
Editall editing bars	
Splicing tape	
Head cleaner and cotton swabs	
Miscellaneous	
Basic video unit - only to supplement existing equipment	1,000

Graphic arts setup (for each setup) Rapid-a-graph set No. 3165-JSP-6 Leroy lettering set Letraset letters Paper, ink, paints, etc. Drawing table, 100 x 150 cm., Nanny Architetto Stool, Dick Blick - Combo Lamp Small light table, Dick Blick - Litebox Supplies, T-square, rulers, etc.	2,000
Other graphic arts (one set only) Large storage unit - Director 23 x 60 x 20 Wall bench unit - Dick Blick 6' x 24" x 26 1/2" Flat files, 5 drawer - Foster Paper cutter	1,000
Photography, photo laboratory - only to supplement existing equipment	1,000
Offset print shot Multilith 1360 CD press Electrostat plate maker, A. B. Dick 3/4" stitcher Large saddle stitcher Small saddle stitcher - electric stapler Drill, 3 spindle - Challenge EH&A Table top folder - Challenge O&M Power paper cutter - Challenge 305 Collator - GBC Printing supplies, ink, etc. Hot glue binder - ARMARCO Bind-o-Mat 200 Small manual paper cutter Light table, Simco Lectro Electrostatic Other accessories as required	65,000
Silkscreen facility Supplies, Ulano, Nas Dar, ink, film, etc. Wood frames and screen, 4 different sizes Squeegees, set of 4 sizes to 18 x 30" Offset silkscreen exposing unit, Atlas	3,000
Microcomputer, with peripherals 5160087 PC-XT, 128K Ram, expandable to 256 K IBM-B247U, 1 disk drive (360 KB) 20 MEG hard disk and serial interface; 1501002 Co-processor, 8087 Math option (need for each SPSS package); 1504900 Monitor, color, graphics, adaptor interface; 1505200 Printer adaptor, Centronics parallel; 150274 serial interface, RS-232; NEC 3550 printer;	9,000

6024120 program, DOS 2.1;
CLND-C-1234 memory chips (each chip adds an extra 64K--should have 3 for each PC and 2 for each XT);
SPSS corporation - SPSS for IMB PC;
Cables for printers;
Lotus 123 with symphony

Desk Calculator - Sanyo 5000 or equivalent	150
Mis. cables, connections, etc.	1,000
A/V equipment	
Slide projector - Kodak AF2 with case	350
Overhead projector - 3M model 213 AKD	660
Opaque projector - Beseler Vulyte IV, model 12400	740
Filmstip projector - AV Concepts Corp. SPS-500 RCN with case	230
Portable projection screen - DA-Lite Video Halo 60 x 60"	120
16mm movie projector - Kodak Ektagraphic OT1000	1,250
Portable audio cassette recorder - Morantz PMD-220	160
Video cassette player - Panasonic NV 8100	750
TV color monitor	500
Portable public address system - Porta Sound Lectern Model 231	550

2. <u>Vehicles</u>

1 12-passenger minibus	12,000
1 8-passenger minibus	10,500
1 Wagoneer/Blazer type	10,500
TOTAL	140,230

ATTACHMENT D

EVALUATING THE IMPACT OF HEALTH EDUCATION SYSTEMS

Presenter: Dr. Dennis R. Foote, Principal Investigator
Mass Media and Health Practices: Evaluation
Institute for Communication Research
Stanford University
Stanford, California

Co-authors: Dr. Carl Kendall, Evaluation Field Director
Mass Media and Health Practices: Honduras
Institute for Communication Research
Stanford University

Dr. Peter Spain, Evaluation Field Director
Mass Media and Health Practices: The Gambia
Institute for Communication Research
Stanford University

Dr. Reynaldo Martorell, Associate Professor
Nutrition and Anthropometry Consultant
Food Research Institute
Stanford University

Paper for presentation at the National Council for International Health Conference, June 13-15, 1983, in Washington, D.C. The research reported here has been supported by the Offices of Education and of Health in the Bureau for Science and Technology, U.S. Agency for International Development under contract #AID/DSPE-c-0028.

Evaluating the Impact of Health Education Systems

INTRODUCTION

The Mass Media and Health Practices (MMHP) Project builds on a fairly extensive history of attempts to use mass media and communication campaigns to carry out health education and health behavior change programs. Previous efforts had used different aspects of the approach - - research for planning, integrated multi-channel campaign strategy, pretesting of messages, social marketing techniques, and the use of behavioral methodologies to analyze and generate change - - but none had combined all the components and none had tackled the complex set of objectives related to introducing oral rehydration therapy. The MMHP Project was thus established with the twin goals of testing and refining the methodology of this type of campaign, and of assessing the campaign's impact on health through the promotion of oral rehydration therapy in a field setting. Because success on both objectives would have implications for health behavior efforts in other countries, a large-scale evaluation was planned. This paper describes the evaluation design, and reports early findings from data collected during the first year of the projects. Data collection continues in Honduras and The Gambia, and more extensive analyses will be conducted as the large data base becomes available.

EVALUATION DESIGN

The evaluation was tasked with investigating both the effects of the campaign on people's behaviors, and the effect of any behavior change on health status. It was recognized that in order for any changes in behavior or in health status to take place, a complex sequence of events had to occur beginning with exposure of the target audience to the campaign elements, proceeding through the learning of campaign information and adoption of new behaviors, and culminating in change in health status as a result of the behavioral changes. At each step the net impact of the project would diminish; if a failure occurred at any point along the path, no further impact would be expected.

To guide the planning of the evaluation, Stanford's Institute for Communication Research developed a detailed "Process Model" describing the sequence of events that would lead to eventual change in health status. A simplified version of that model called for the target audience to be exposed to the campaign effort, for them to learn from that exposure and remember and accept the messages, for behavioral change to occur, and for those behavioral changes to result finally in changes in health status. The model pointed clearly to the need to measure results at each level - - Exposure, Learning, Behavior, and Health Status - - in order to answer questions about both the effects of the campaign and the effects of oral rehydration therapy. Hence variables were identified to track the impact at each level.

The research design developed to track the impact of the campaign involves a panel study of roughly 750 families in each country over a little more than two years. In Honduras families were recruited into the study from 20 communities under a stratified, purposive sampling plan with random selection of families within communities. In The Gambia, where communities are organized into compounds which often include multiple or polygamous families, communities were purposively

123

selected, and compounds were randomly sampled, after which women were randomly sampled within compounds. A woman was considered eligible for the study if she was between 18 and 45 years old or was responsible for caring for small children.

Mothers are visited approximately once a month by a local field worker who administers questionnaires and conducts observations and anthropometric measurements. A general "baseline" survey is conducted at the beginning and end of the study; in the intervening months, batteries of items relating to topics of specific interest are administered or repeated. Thus, for example, four batteries are used in Honduras, covering Anthropometry, Morbidity, Communication, and Childcare Practices. Administration cycles have averaged somewhat longer than one month, so instrument batteries are repeated roughly every six months. In addition to the panel surveys, a number of much smaller ancillary investigations are conducted in order to supplement the information about exposure, learning, behavioral change and health status change. The other studies include interviews with health workers, a community mortality study, ethnographic research in two communities, a cost-effectiveness study and an administrative history.

EVALUATION FINDINGS

Findings from the evaluation research at this point are based primarily on analysis of the survey data from the panels of families in each country through the first year of the two year projects. As such, they are interim results and do not yet reflect the full impact of the program. They are presented here in the order specified in the process model. First, access to the channels used by the campaign and exposure to the campaign messages are examined. Learning of campaign information is assessed, and then behavioral change is investigated. Finally, health status is examined. An attempt is made to report parallel data from both projects; however, differences in the interventions and in the data collection procedures limit the direct comparability in some cases, and in other cases for the sake of brevity only one site's data is presented as illustrative.

Access and Exposure

We first set out to determine whether the three principle communication channels used by the campaign - - radio, interpersonal contact through the health care system, and print materials - - were feasible means of delivering messages. We found in general that the population had good access to the channels and reported high exposure to campaign components.

Radio

Ownership and functioning of radios among the sample were assessed by asking participants whether they had a radio and asking them to turn it on to demonstrate that it worked. In Honduras, 80 percent of the families owned radios, and 71 percent of the families had a radio that worked on the day of the interview. In The Gambia, 66 percent of the compounds had radios, and in 60 percent of the compounds they were demonstrated to be in working order.

In addition to existence of radios, the amount of radio use was investigated. The results support the notion that radio has very high

penetration in rural areas and is listened to frequently. In Honduras, 63 percent of mothers reported listening to the radio on the previous day. They start listening as soon as they get up, and radio use peaks between six and seven a.m. with 38 percent of all households tuned in at that time. There is a gradual decline over the course of the day, with the exception of another peak (36 percent) between twelve and one p.m., at lunch. Relatively little radio listening takes place in the evening. In The Gambia, radio listening is also high, but the pattern contrasts sharply with that of Honduras. The most common time of listening is 8:00 p.m., which over 70 percent of the women say is their preferred listening time.

Women who listen to the radio also remember hearing campaign messages as measured by a 24-hour radio listening recall test. For example, in Honduras, 44 percent of the mothers remembered hearing at least one MMHP spot advertisement on the previous day. Mothers who listened to the radio on the previous day remembered hearing an average of more than three spots. Clearly, the use of radio as an information distribution channel to rural mothers is a success.

Interpersonal Contact

Both countries train the existing infrastructure of health care workers about diarrheal disease and use them to promote campaign objectives. It is therefore important to establish whether contact between rural families and representatives of the health care system took place frequently enough to expect this component to work. The systems of primary care in rural areas in both Honduras and The Gambia rely on tiered systems of facilities, ranging from hospitals down to community volunteers. There are also well-established systems of sources of traditional care present in the communities. In Honduras, 47 percent of mothers had had contact with some type of health care worker in the previous six months. Thirty-three percent of all mothers had seen a physician or a nurse at a clinic. Twenty-one percent of all mothers had been in contact with some level of community-based health worker, such as local volunteers, midwives, or health educators. Eleven percent had dealt with some "traditional" source of care, such as a healer or a masseuse. Obviously, some mothers had contacted more than one source of care. In The Gambia prior to the MMHP campaign, 85 percent of mothers said they had gone to the health center for their child's last case of diarrhea, while 8 percent said they had gone to a local healer. Two out of three Gambian mothers can reach a health care facility within ninety minutes, usually by walking. These are both very high levels of interaction with representatives of the health care system and make the planned use of interpersonal channels a very reasonable approach. It also demonstrates a conclusion from this and other data from both countries - - that the system of traditional or folk medicine co-exists with the western or modern system, with care being sought from either system according to the person's self-diagnosis, and sometimes from both systems simultaneously. The strong preference in most cases is for the modern medical system.

Print

The campaigns in both countries rely on some use of printed materials, such as posters, flyers, and pictorial instructions. Thus, we checked the literacy in our sample. Honduran mothers were able to

read a complex phrase 57 percent of the time. In households where the mother could not read, other family members were tested for literacy. The household literacy rate was an impressively high 87 percent. In The Gambia, the situation was markedly different. Fewer than three percent of mothers could pass the literacy test, and only about a third of the compounds had a reader present when we conducted our test.

The print materials used in the two projects have been designed with these limitations in mind. In Honduras, posters have been widely distributed as have instruction sheets with pictures and writing. After a year of campaign activity, using a fairly strict test of unaided recall nearly half (47 percent) of Honduran mothers could describe a MMHP poster they had seen well enough for the interviewer to identify the poster. In The Gambia, a flyer that relied almost exclusively on pictures to explain the mixing of oral rehydration solution was prepared and distributed over the entire country. In our sample, 79 percent had seen the flyer and 71 percent could show us their copy of it.

Thus, properly designed print materials can also be used as a communication channel, even in circumstances in which literacy is quite low.

Learning

Once it was established that the channels used by the campaigns were available to the mothers and could, in fact, be used to deliver campaign messages, the evaluation effort focussed on measuring learning through those channels. Learning has been measured using recall, recognition, open-ended and true-false items about the specific content of the instruction given in the radio spots and programs and by health workers. Items relating to specific topics have been combined into indices to estimate learning gains. The result is an impressive level of learning, both in terms of absolute levels of knowledge and in terms of improvement. This paper will present a few examples, rather than try to summarize all the learning data.

In Honduras, the oral rehydration solution promoted is called Litrosol, and it did not exist before the program began. By the end of one year of campaign activity, 92.5 percent of mothers could name Litrosol as the medicine being promoted by the campaign. One third of the mothers could define dehydration, a concept which pretesting had shown to be absent before the campaign. When prompted with the first lines, more than 70 percent of mothers could complete the campaign jingle having to do with giving liquids during diarrhea. An average of 62 percent of jingle-completion items were correctly answered by mothers. Sixty-five percent of mothers know of Dr. Salustiano, the main character in one group of radio spots. Ninety-five percent of mothers named breastmilk as the best milk for babies (up from 62 percent after six months of campaign). Five indices were constructed to measure learning from Dr. Salustiano spots in general, Dr. Salustiano's specific spots about dehydration, Dona Chela spots (another character used in the radio campaign), spots about dehydration, and spots about breastfeeding. These measures were first given after six months of broadcasting and again after twelve months. The performances at the six month period average eleven percent of the index value, and after a year almost eighteen percent, an average gain of over 60 percent. The range of gains on the five indices is 35 percent to 180 percent.

The campaign in The Gambia relies heavily on longer radio programs

126

and other promotional activities, such as a lottery, to instruct and motivate mothers. Hence the learning measures were targeted on more general tests of knowledge than message specific tests as in Honduras. One of the most important content areas has to do with teaching the method of mixing water-sugar-salt solution for home administration of oral rehydration. At the very start of the campaign, only one mother out of about 800 could correctly give the formula for mixing water-sugar-salt solution (WSS). By December of 1982, nine months into the campaign, 64 percent of the mothers could give the entire formula. This represents an astonishingly powerful learning activity, since the information itself is fairly complex and the means used to teach it involve voluntary exposure to intermittent inputs. At that point in time, only 20 percent of the mothers had not heard of the water-sugar-salt medicine that you can make at home.

One of those inputs was the "Happy Baby Lottery," which was promoted for a few months by radio and actually involved only 72 of The Gambia's hundreds of villages. Nonetheless, half the mothers in the sample had heard of the lottery and 71 percent actually had the instructional flyer that was used as an entry requirement in the lottery. An analysis of other items on a wide variety of topics covered in the campaign shows an average gain of 35 percent between the sixth and ninth months of the campaign.

There is no doubt that the specific content being taught by both campaigns is being learned and retained by the mothers. The general pattern seems to be one of fast initial gains followed by slower gains as time goes by.

BEHAVIOR

The analysis to date of behavior changes associated with the project has concentrated on the adoption of Litrosol and water-sugar-salt therapies for dehydration. In Honduras, the use of Litrosol packets in the home is a new behavior. The proportion of cases of diarrhea treated with Litrosol rises from zero prior to the campaign, to nine percent after three months of broadcasting (at which point supplies of packets were just beginning to be available in the community), to 26 percent after a year of the effort. At the end of the first year, half the mothers report that they have used Litrosol at some point. About two-thirds of the women who have used it report that they obtained it in their own community; the rest tend to get it at clinics or at the hospital. Knowledge on how to mix the solution is high - - 95 percent of the women know to use a liter of water and to put in the whole packet. Most women (58 percent) report that they learn how to mix it from the packet (which comes with an instruction sheet). Fewer women (43 percent) learn from interpersonal sources and far fewer from the radio (14 percent). There is a positive relationship between the severity of the case and the likelihood that it will be treated with Litrosol.

In The Gambia, various techniques of mixing and using water-sugar-salt solutions had been promoted by the Ministry of Health in the past. However, none of these used the same formula as the current campaign. The use of water-sugar-salt solutions rises from four percent of all cases of diarrhea at the beginning of the campaign to 48 percent of all cases after nine months. If the analysis is restricted to those mothers who treat their child's diarrhea themselves, the rise in adoption of WSS

is even more marked. The proportion of mothers treating cases themselves rises from 18 percent at the start to 54 percent after nine months. The percentage of those mothers treating with WSS rises from 21 percent to 89 percent over the same period. Use of other, often inappropriate, treatments falls correspondingly.

The third step in the sequence of events that the evaluation's process model postulates, the adoption of the promoted behaviors, is also attained. Many mothers have acquired the skills and are introducing the behavior into their patterns of response to diarrheal disease.

HEALTH STATUS

The health status variables being monitored in the evaluation include anthropometric measurements, morbidity, and mortality.

Morbidity has been measured in various ways. Prevalence of diarrhea among children under five on the day of the interview in Honduras has shown a high of 14.6 percent (in June) and a low of 8.7 percent (in March) in the two measures analyzed thus far. Incidence in the previous two weeks is 36 percent in June and 21.5 percent in March. These differences are probably seasonal variations, as treatment with Litrosol is unlikely to affect the incidence of the disease. There appears to be a rapid dropoff in memory of cases; reported prevalence on the 14th day prior to the interview is roughly half the day-of-interview rate. Nonetheless, by combining data from various sources it is possible to estimate that a minimum of half the children have had an episode of diarrhea in the six months prior to the interview.

Incidence in The Gambia is roughly the same and, because more closely spaced measures are available, can be shown to exhibit a clear seasonal variation. Incidence over the last two weeks ranges from a low of 10.3 percent of children during the dry season to a high of 33.5 percent during the rainy season. Prevalence on the day of the interview, however, is lower, with a range of 2.3 percent to 9.5 percent.

The baseline anthropometric measures of nutritional and growth status in Honduras have been analyzed. Approximately 30 percent of children under five are "stunted" (i.e., less than 90 percent of height for age), while only slightly more than one percent are "wasted" (i.e., less than 60 percent weight for height). Thus, while a cumulative growth deficit is occurring, the children do not appear to be acutely malnourished in June of 1982. Subsequent analyses will examine the change in health status and its relation to illness and oral rehydration therapy.

Mortality data are being collected on the entire population of the communities from which the study sample is drawn, thus giving a substantially larger population base. Data from Honduras show a significant drop in the proportion of deaths that involve diarrhea among children up to 24 months old. For a comparable set of seasons, diarrhea was mentioned as a cause of death in 45.3 percent of the deaths for one and one-half years before the start of the intervention and in 25.0 percent of the deaths in the year and a half following the availability of oral rehydration solution. This decline is significant at the $p < .005$ level. Mortality data are also being collected in The Gambia but are not yet complete.

128

CONCLUSION

This paper has presented the evaluation plan and some of the early findings of the evaluation of the Mass Media and Health Practices Projects in Honduras and The Gambia. The findings indicate that: the target populations have good access to the communication channels used by the campaigns; the target populations are exposed to and aware of the campaign activity; the audiences are learning a great deal of the campaign information; they are adopting the treatment behaviors of oral rehydration therapy on a large scale; and the proportion of mortality among children less than two that involves diarrhea has fallen significantly in one country.

Subsequent analyses will follow these same issues through the data from the second years of each campaign and relate the behavior to changes in health status of the treated children.

ATTACHMENT E

COMMUNICATION FOR EXTENSION: DEVELOPING COUNTRY EXPERIENCE*

Anthony J. Meyer
Educational Technology and Communication Division
Office of Education
Bureau for Science and Technology
Agency for International Development

Communication has always been an integral part of agricultural extension.** It is impossible to think of transferring technology or obtaining farmer feedback to adapt technology without communication. This paper will characterize several major approaches to the use of communication in support of agricultural extension and suggest directions for change in prevalent practice. These characterizations depend, in part, on more extensive literature reviews, particularly those by Ray (1984), Perraton and others (1983) and Hornik (1982). The approaches discussed here include:

- -- Direct farmer contact;
- -- Farmer forums;
- -- Open broadcasting;
- -- Advertising and social marketing;
- -- Print media;
- -- Campaigns and distance teaching;
- -- Comprehensive communication systems.

Direct farmer contact.

Traditional extension, still the dominant model in developing countries, relies predominantly on direct contact of an extension worker with the farmer to communicate information related broadly to research innovations and to obtain farmer feedback. To accelerate technology transfer, extension workers have often narrowed their audience to select farmers considered to be innovators, with the expectation that they will adopt new technologies rapidly and that other farmers will follow their lead. Demonstration days and group discussion meetings typically support this farmer contact system. Media like flip charts and promotional films are used as aids to enhance face-to-face instruction.

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**Agricultural communications includes all technologies, methods and skills utilized in transmitting and receiving information for the purpose of developing, transferring and sustaining the use of appropriate technology in agriculture.

The outcome of traditional extension has been a source of much disallusionment. The number of farmers per extension agent is typically between 500 and 1,000. It is invariably found that only a minority in the farming community has had effective contacts with the agents and that those covered have been contacted less frequently than would be necessary to ensure the assimilation of all the new farming practices to be introduced (Orivel, 1983: p.1 ff.). Estimates of farmers covered range from 3 to 21%, without considering whether or not the coverage has been effective in achieving the adoption of technology or increased productivity. It has also been a common finding that farmers reached directly by extension services tend to be among the better-off members of the farming community and in least need (Rogers and Shoemaker, 1971).

Daniel Benor has tried to improve traditional extension through a "Training and Visit" (T & V) system designed to emphasize the organizational and training components of extension:

> "Most people are aware of the importance of good extension work, the close linkages needed between research and extension, and the two-way flow of information to and from the farmers. Yet good extension and proper linkages do not exist in many countries . . . .. Why? The main element missing is an organization that is capable of translating the good intentions into practice in the field. This is what the Training and Visit System of agricultural extension is trying to do: to ensure that extension agents receive adequate training so that they are qualified to meet and advise farmers in a regular, continuous manner, and to bring farmers' problems back to research for solutions" (Benor, 1984: pp.1-2).

While not denying the importance of these training and organizational features, others have tried to increase the coverage and impact of extension through mass media. In considering extension as a vehicle for communicating with large numbers of farmers, without significant prejudice for their education, income or social status, these approaches have important lessons to offer. The most noteworthy of these strategies using mass media will be discussed here.

Farmer forums.

One of the earliest attempts to use media in extension was the farmer radio forum. The basic strategy for the farmer forum was developed in Canada before World War II, adopted in India and Colombia during the late '40's and '50's and subsequently tried in numerous countries (McAnany, 1973). A weekly radio program presents a discussion, dramatization or lecture which is listened to and discussed by groups of villagers. A group leader maintains order and encourages discussion. When possible, some action decision is taken by the group.

Farmer forums appear to do well in the short run; then to lose their impetus. The weekly broadcast schedule seems to have set too relentless a pace for the generation of new, actionable topics by the extension service or for local farmers to respond. Lack of integration of the forum with other elements of the extension system such as follow-up contact and the provision of technical and material inputs has outweighed its positive qualities.

But the experience with forums leads to positive lessons as well. Rapid diffusion of a standard message can be achieved. Radio forums can take advantage of creative group dynamic methods, mobilize interest, motivate community action and generate feedback for technology adaptation. Their selective use in a broader communication strategy can be powerful. In some cases, as in the Basic Village Education project discussed below, success with farmer discussion groups has been maintained. Success appears to be in direct relation to varied pacing of programs and integration of the discussion group into the broader technology development and transfer effort.

Open broadcasting.

It is estimated that there are over 15,400 radio stations in the developing world broadcasting to over three billion five hundred million people with 239,200,000 radio receivers -- one for about every 14 people (Frost, 1983). It is no wonder that open broadcasting of radio programs directed to the farmer population is fairly common.

The prevalent format is a daily or weekly 15- to 30-minute didactic program. Colin Fraser, Chief of the Development Support Communication Branch of FAO, characterizes such programming in relatively negative terms: "Programmes are uninspiring, if not outright boring, in most places. . . . Rural broadcasts too often consist of studio talks by agricultural technicians, and little else, except perhaps repeats of the previous years' programmes, linked to the agricultural calendar" (Fraser, 1983: p.2).

On the other hand, good production quality is sometimes achieved and maintained. One world-wide example of this is the programs produced and disseminated by The Developing Countries Farm Radio Network sponsored by the Canadian International Development Agency, Massey-Ferguson Ltd. and the University of Guelph. The network collects information on simple, practical methods of increasing food supplies and improving nutrition and health at the subsistence farmer level. This information is put in the form of radio broadcast items and distributed among agricultural communicators of all kinds in developing countries. The programs use a dialog, talk show format. Listership is estimated to be over a hundred million people in more than 100 countries.

132

The main drawback of this kind of well produced series would appear to be its lack of integration with the specific events, objectives and character of particular country programs. Such programs are useful but stop far short of offering comprehensive communication support for extension, particularly in the adaptation of technology to highly specific local conditions.

Open broadcasting can be done poorly or well. It is a versatile instrument, its quality depending on broadcaster training, resources, production skills and the adequacy of a larger communication strategy. When used well and in coordination with other inputs, we know that open broadcasting can get information out to farmers quickly; reinforce extension worker instruction; mobilize for action; and satisfy recurrent information needs tied to the agricultural calendar.

Advertising and social marketing.

It is tempting to want to use open broadcasting to sell new agricultural practices as if they were products like soda and dish soap. Indeed early attempts to use media in the health sector in developing countries to introduce a variety of nutritional practices followed an advertising model using "reach and frequency" techniques -- the use of a small number of highly focused radio or television spots repeated thousands of times (Zeitlin and Formacion, 1981: p. 135 ff.). In advertising as such, however, the objective is usually simple product choice behavior (Tide vs. Cheer), not the introduction of complex innovations.

Other programs have more recently emerged which have combined more sophisticated marketing strategies with the techniques of advertising to increase contraceptive use and introduce oral rehydration therapy in developing countries. These have been described as social marketing programs.

Philip Kotler and Gerald Zaltman first described social marketing as the "design, implementation and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communications and marketing research" (Kotler and Zaltman, 1971). Today, U.S. social marketing firms mount campaigns for a variety of socially beneficial causes that range from seatbelt use to smoking cessation (Fox and Kotler, 1980; Kotler, 1982).

A.I.D.'s Contraceptive Retail Sales program (CRS) aims "at promoting, distributing and selling a contraceptive product to consumers through an existing sales outlet at a relatively low, subsidized price to achieve a recognized social goal -- expanding contraceptive use" (Population Information Program, 1980: p.J393).

A.I.D.'s experience in applying social marketing to the promotion of Oral Rehydration Therapy (ORT) has emphasized changes in user behavior in conjunction with product promotion. In Honduras, the promotion of Litrosol -- locally packaged ORT salts -- provides a useful example. Product packaging, logo and accompanying materials were developed with careful product testing and materials pretesting. Indigenous packaging and distribution systems were used. The product was introduced to the target audience through an intensive promotional campaign using radio, posters and flyers in addition to the training of health system workers (Meyer, Block and Ferguson, 1983; Smith, 1983).

Three features of this ORT program gave it an enhanced orientation toward user behavior compared with other social marketing programs:

- Product testing trials and the development of messages aimed at correct use of ORT were based on unusually detailed village-level investigation.
- Principles of instructional design drawn from behavioral psychology guided the investigation and message development process.
- Promotional advertising was used in closer coordination than usual with training and face-to-face client contact over an extended period of time.

After one year of broadcasting, 48% of women in a 750 random sample household survey in Health Region I of Honduras reported having used Litrosol, and over 90% of these could mix it properly. Death from any cause involving diarrhea in children under two in the Region dropped by 40% within 18 months (Foote and others, 1983).

These social marketing methods are discussed in fuller detail elsewhere (Meyer and Boni, 1984; Smith, 1984). They have not yet been applied so comprehensively to technology transfer in agriculture.

Print media.

Print media such as posters, flyers, manuals, photonovel-type booklets and newspapers have been an integral part of the use of media as instructional aid, in farm forums and in advertising and social marketing strategies (Parlato, Parlato and Cain, 1980). Campesino newspapers have come to have an important life of their own in many countries (White, 1983: p. 122). The use of print media in agricultural extension has followed the same evolution as radio, from simple support for face-to-face discussion to more sophistocated incorporation into complex communication strategies.

When used well, print media can provide a graphic reminder of how or when to do something. They can provide access to instruction long after the extension agent has left. Print media can have a multiplier effect as materials are passed from hand to hand. By themselves, however, they cannot be expected to transform practices or replace the motivational potential of interpersonal contact. Like open broadcasting, print media are best used as components in a more comprehensive communication system.

Multiple channel systems: campaigns and distance teaching. None of the above strategies for using media, with the exception of some open broadcasting programming, intend to rely on media alone for their full effect. Media are best thought about as a complement to other inputs (Hornik, 1980). They are part of a more comprehensive communication system in which their predominant impact comes from their interaction with each other and with face-to-face communication. Decades of communication research have been devoted to understanding these interactions (Cartwright, 1949; Katz and Lazarsfeld, 1955; Troldahl and Van Dam, 1965; Arndt, 1968; Meyer, Maccoby and Farquhar, 1977).

Some interventions more consciously than others have tried to take advantage of multiple channel impact. Social marketing programs are clearly in this category. Among these, highly visible, intensely energetic national campaigns stand out as special examples. There have been breastfeeding campaigns (Restrepo, 1981), health and nutrition campaigns (Hall, 1978), family planning campaigns (Freedman and Takeshita, 1969), literacy campaigns (PROSPECTS, 1982) and campaigns to promote agricultural technology. Perhaps the most famous of those in agriculture has been the "Masagana 99" rice promotion campaign in the Philippines which energized the national rice-growing program (Merrick, 1981).

"Masagana" means bountiful harvest. The "99" refers to the campaign's goal -- 99 sacks or 4.3 tons of unmilled rice per hectare. The rice-growing program consisted of three elements:

- New rice growing technology including a high-yield variety and cultivation techniques simplified to a 16-step process.
- Credit without collateral through a nationwide credit scheme supervised by the Central Bank of the Philippines.
- A mass communication campaign using radio and print materials in combination with intensive training of extension agents.

In the first year of the program by May 1974, 643,000 farmers received $81 million in loans. By 1976, the "Masagana 99" program had transformed the Philippines from a rice-importing to a rice-exporting nation.

135

Like other major national campaigns that have produced dramatic results, the key role for media in "Masagana 99" was the mobilization of large numbers of people to participate in a national project. Tremendous governmental resources were also spent on other inputs such as the recruitment and training of rural credit representatives. A visibly successful rice variety was able to reinforce the momentum of the campaign.

Few programs can afford the intense energy or political capital that national campaigns like "Masagana 99" require. But all programs should be able to use media in interaction with training and the coordination of other inputs as part of the normal conduct of agricultural communication activities. Such institutionalization of the major successful elements of a campaign approach has not taken place systematically in extension programs.

Distance teaching associated with more formal instructional systems is a calm contrast to national campaigns in its use of multiple channels. There is a long history of such programs (Spain, Jamison and McAnany, 1977). They tend to achieve significant results when compared to traditional instructional programs. A.I.D. has reported tremendous success in the use of radio for primary education in mathematics (Searle, Friend and Suppes, 1976) and language arts (Cutler, 1982). Radio has also been used to conduct in-service training for school teachers (Kinyanjui, 1977) and agricultural extension agents (Merrick, 1981).

One of the longest lasting programs in distance teaching in agriculture has been the correspondence program sponsored by the INADES-FORMATION organization founded by the Jesuits in West Africa, presently operating in ten countries (Jenkins and Perraton, 1983). In 1962 INADES launched correspondence courses for extension agents in economics, sociology, planning and development. Today INADES, headquartered in Abidjan, provides correspondence courses on agriculture for peasant farmers and agricultural extension agents, publishes a magazine on agriculture (Agripromo) and conducts seminars. Over the years radio support programming has had an increasing role in the INADES program. National offices are located in Burundi, Cameroon, Chad, Ethiopia, Ivory Coast, Kenya, Rwanda, Togo, Upper Volta and Zaire. Since its inception in 1962, over 43,000 rural people have completed INADES courses.

Distance teaching methodology represents a rich tradition of understanding how to use media in coordination with other system inputs and face-to-face communication; the application of principals of instructional design to radio curriculum development; and the application of formative evaluation processes to the development of instructional materials. These lessons have not been widely applied in support of extension.

Comprehensive communication systems.

In the attempt to use communications media to increase the coverage and impact of extension systems in developing countries, many methods and techniques have been used successfully. There are also staff, often not well trained, in extension systems, information units, radio stations and newspapers assigned the task of using their commuications skills to reach farmers for specific limited objectives. But there are few examples where multiple methods have been brought together under the aegis of a comprehensive communication strategy and institutionalized as part of an on-going extension system.

A.I.D. has been involved with at least one major effort to create this kind of system: the Basic Village Education (BVE) project in Guatemala (Ray, 1978). The BVE project experimented with various ways of using radio with face-to-face communication, particularly with variations of traditional farmer forums. In the process of doing this, the project trained permanent Ministry staff in communication skills and established materials development procedures to insure that integrated packages of relevant messages were delivered in the proper sequence at the right time through appropriate media. The project served as a comprehensive communications support system for extension, although it stopped short of applying many of the social marketing and distance teaching techniques still evolving at that time.

Conclusion.

The applications characterized here have shown many strengths. At their best, and particularly in combination, they have shown that communications can provide significant support for extension. But they have seldom been applied comprehensively, as a single on-going communication support system, in extension. Lessons from social marketing in other sectors have not been exploited. Lessons from distance teaching have been underutilized. The networking and feedback functions of communication in extension have not been systematically studied, and methods to improve these functions have not been given adequate attention. Most importantly, few extension systems have gone far in institutionalizing comprehensive systems of communication support.

The potential for significantly increasing the coverage and impact of extension through the more sensitive and comprehensive use of communications is great. The history of past communication applications needs only to mature in the directions already started.

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ATTACHMENT F

NSF ADVISORY PANEL RECOMMENDATIONS

The following National Science Foundation advisory panel met on February 1, 1985 to review a prior draft of this document:

R. Harwood, Chair (Rodale Research Center)
J. Axtell (Purdue University)
S. Passman (Consultant)
H. Ray (Academy for Educational Develoopment)
D. Welsch (University of Minnesota)

The attached recommendations have been taken into consideration in preparing the present draft.

Report
Follow-up Meeting of Panel on Communication
for Technology Transfer in Agriculture

Washington, D.C.
February 1, 1985

Panel Members Present:

Richard R. Harwood
Howard Ray
Sidney Passman
Delane Welsh
John Axtell
Robert Hornik

Others Present:

Mildred Bosilevac (NSF)
Anthony Meyer (USAID)
Kenneth Swanberg (USAID)
Clifford Block (USAID)

After convening the panel by the Chairperson, a report was given by A. Meyer on the status of the project. Reports on the field visits were given by H. Ray and J. Axtell.

Considerable discussion was devoted to the draft P.P. Several comments from committee members on various parts of the document were given to the project manager both orally and as notation on the document itself. The following points represent consensus opinion of the panel concerning major comment that we wish to make:

1. The Panel is gratified with the progress made in connection with the formulation of the project, both with regard to the extensive material recently collected in country visits concerning the technology, institutional resources, endorsement and anticipated support, as well as in the constructive manner in which previous advice has been incorporated in the latest version of the Project Paper.

2. The Panel is unanimously convinced of the relevance, timeliness and significance of the CTTA project in its present form, and hopes that it will receive further administrative approval. The emphasis on communication innovations should meet a significant need in the effective utilization of agricultural technology within the proposed countries and the evaluation and diffusion project elements should also provide an extended utility to others.

3. One focus of panel attention has been the review of the Project Paper with reference to the availability of appropriate agricultural technology for diffusion by the CTTA project. Two criteria were used in this assessment. First, the availability of new or existing agricultural technology and second, the capability of the agricultural research institutions to continue providing research input over life of project. Honduras and Peru from the evidence we have, appear to satisfy both of these criteria. Additionally, several good technologies are available in Ecuador, but some concern was expressed for the continuing stream of research results in the future. The current situation in Ecuador should be followed closely over the next year to determine how effectively the new institutional infrastructure can provide the continuity to sustain a long-term and productive agricultural research program. The capacity and

142

readiness of the research institutions to participate fully with other involved institutions in the interactive process characteristic of and required by the CTTA pilot project is considered separately in Section C of the project paper.

4. Considerable discussion was devoted to suggestions for more clear articulation of the unique contribution of this project to improving the state of the art in communication for agricultural development in third world settings. It is clear that the project has potential to make a major advancement in this field and to demonstrate and adapt those new approaches across a range of environments and institutions. It was suggested that two additions be made to the project paper. First, a conceptual diagram of the added dimensions of planned information flow in this project was drawn up and provided to the project officer for further modification and inclusion. Specific suggestions for consolidating description of these new flows from other sections of the report were made, as well as the need to add several suggested descriptive points. Secondly, it was suggested that a short description of a very specific example from Honduras be added to illustrate how the approach will work.

5. The incorporation of additional sites.
The multiple site plan represents a positive opportunity to develop the CTTA methodology across contrasting agricultural and institutional circumstances and to permit more rapid learning about the utility of the approach. However, we recognize that evolution of particular circumstances at pre-specified sites may make their participation more or less appropriate.

Also, the program should retain the flexibility to slow down or speed up the process of incorporation of the new project sites and the intensity of investment at existing sites. While AID mission requests for local implementation will influence which projects are included, they should be weighed against technical judgments about program readiness for new site introductions.

6. Linkage with Farming Systems Research and Extension (FSR/E) will be important for several reasons. First, this project promises to make a substantial contribution to development of interactive communication techniques between farmers, researchers, and extensionists. Second, the linkage is important in order for CTTA to keep abreast of the state of the art in FSR/E, methodologies especially farmer managed on-farm trials. Third, linkage with an active FSR/E project may be one way of assuring generation of new technology for agriculture.

We are assuming that appropriate linkages with a variety of institutions will be desirable for both formal and informal exchange of needed information and assistance. The contractor should be encouraged to take full advantage of such opportunities.

142

7. Resources.

The NSF panel considered the issue of resource availability both projected CTTA project inputs from the outside and those existing in-country, in relation to their adequacy for achieving the CTTA project purpose.

A. Human Resources

1. Project inputs

It is the judgment of the panel that technical assistance projected for the primary and collaborating sites represents the minimum level of effort that will be required to implement the project successfully. At this stage, it is impossible to define technical assistance needs precisely. The long-term advisor projections appear reasonable, but needs for short-term technical assistance will vary from site to site, depending upon the level of expertise and experience of local staff and relevant expatriate assistance available from other AID-funded projects or that from projects sponsored by other donors.

The panel recommends that flexibility be maintained to adjust planned technical assistance both within and among sites to obtain maximum benefit from resources allocated for technical assistance.

2. Existing in-country personnel

Based on the findings of the subcommittee during its field visit, the Panel considers existing in-country human resources to be reasonably adequate, provided intensive in-service training is provided as projected in the draft P.P.

B. Equipment

The combination of existing communication-related equipment plus the modest amount to be provided by the Project should provide the capability required for the CTTA project, although flexibility should be maintained to adjust to the realities at each site.

Final Comment

The panel wishes to thank Ms. Mildred Bosilevac for her presence throughout the day and for her special assistance in seeing to our effective work and our comfort.

Richard R. Harwood
Chairperson

144