PN-AAZ-571 proj # 931-1109
35566

INCORPORATING COMMUNICATION STRATEGIES into AGRICULTURAL DEVELOPMENT PROGRAMS

PART ONE

GUIDELINES

By

Howard E. Ray, PhD
Vice President and Director
Agricultural Sciences and Technology
Academy for Educational Development

OCTOBER 1985

Prepared under Contracts No. AID/ta-C-1473, and No. AID/DPE-1109-C-00-4081-00, Communication Support Project, by the Academy for Educational Development and the Institute for International Research, funded by the Office of Education of the Bureau for Science and Technology of the United States Agency for International Development.

Foreword

Communication, the transfer of ideas and knowledge, is vital to human association. We all use communication skills every day as we go about our daily business. At every level--personal, professional, business, community, national, international--the degree of success enjoyed is dependent in large part upon the ability to communicate effectively.

In agriculture, some of the problems encountered in transferring improved agricultural technologies from research to the farmer in the developing world offer a prime example of the consequences of not communicating effectively. Obviously, communication alone cannot solve all of the problems associated with technology or information transfer. When effective communication support is incorporated into projects that have the other ingredients required for success, however, it has high potential for increasing impact.

Today, the planner has multiple resources upon which to draw in designing communication support programs. These include not only newly developed communication technologies and experience gained in the use of communication in agriculture, but also communication experience from other sectors such as health and education, and important concepts and procedures from other disciplines such as behavioral science and social marketing.

The objective of this study has been to synthesize such technologies, experience, and concepts adapted from other disciplines into practical guidelines for designing and implementing appropriate, audience-oriented communication support programs in agricultural development projects.

The guidelines are presented in Part One of this paper, and the conceptual framework on which they are based is developed in Part Two. Reviews of six projects with strong communication components (two from agriculture and one each from literacy/basic education, health and integrated rural development) are included in Part Three.

Acknowledgments

This study was made possible by funding provided through the Small Activities Project of the Bureau for Science and Technology of the United States Agency for International Development under the guidance of Dr. Nyle C. Brady, Senior Assistant Administrator. The author gratefully acknowledges and expresses his sincere appreciation for this support.

The excellent guidance and suggestions received from a committee comprised of representatives from the Education, Agriculture and Rural Development Offices of the Science and Technology Bureau and from the Latin America and Caribbean Bureau are gratefully acknowledged. The long hours that they spent in reviewing early drafts of the paper and in meeting with the author helped greatly to sharpen the focus and improve the quality of the paper, and were very sincerely appreciated.

Although the list of AID staff who contributed to the paper is too long to enumerate, the author wishes to give particular thanks to Anthony Meyer who was always available for consultation and who provided invaluable guidance and suggestions throughout the study, to John Eriksson for his early encouragement and continued support of the study, and to Kenneth Swanberg, Philip Church, Ralph Cummings, Jr., Clifford Block and others who contributed so generously of their time and reference libraries.

The author is indebted to his colleagues at the Academy for Educational Development for their support and contributions. Particular thanks are due to Bill Smith, who contributed substantively to the manuscript and reviewed each of the several drafts, to Judy Brace who assisted in locating references and also reviewed the drafts, and to Bette Booth and Mark Rasmuson who contributed materials that were later incorporated into the paper. The editing assistance of Minerva Neiditz is also acknowledged.

Finally, the author expresses his deepest appreciation to his wife for the endless hours she spent researching, proofreading, preparing figures, checking and rechecking the manuscript.

To all of these, and the numerous others who contributed to the study and paper, the author expresses his sincerest appreciation.

October 28, 1985

H.E.R.

EXECUTIVE SUMMARY

Projects such as Basic Village Education in Guatemala and Masagana 99 in the Philippines have demonstrated that effective communication support can increase the impact of agricultural development programs. It is encouraging that interest in such communication support is growing, and that viable communication components are being incorporated increasingly into agricultural projects around the world.

New approaches will be required to improve the performance of technology transfer and other agricultural development projects. In addition to taking advantage of the body of experience gained from successful agricultural projects and newly developed communication technologies and methodologies, concepts and procedures from behavioral science and social marketing need to be adapted and used. The farming systems concept will also have relevance. Effective communication support must be a key element.

No comprehensive communication model exists that applies to all projects and programs. Nevertheless, current experience is sufficient to permit synthesis into practical guidelines for incorporating effective communication support into agricultural development projects.

A set of guidelines for planning, implementing and monitoring appropriate communication support is presented in Part One. First, eight critical planning steps are identified and discussed: 1) determining and testing relevant assumptions concerning the project as a whole; 2) establishing an institutional base and "home" for the communication component; 3) identifying information needs; 4) determining existing communication resources; 5) developing a ten-point communication strategy; 6) estimating communication-related resource needs; 7) integrating the communication strategy into the total project plan; and 8) interpreting what is implied by a "final" communication strategy.

Communication support implementation guidelines include: 1) communication component organization, staffing and management; 2) developmental investigation; 3) educational programming (including feedback); 4) pretesting and formative evaluation; 5) staff training and support; and 6) interinstitutional coordination and networking. Guidelines for monitoring progress are presented in the final chapter of Part One.

The paper repeatedly emphasizes that the communication component is a supporting element of the agricultural project that can be effective only to the extent that it functions as an integral part of the total program. Critical linkage points are identified at each stage in the planning and implementation processes, and the potentially important roles of the private sector and other public section institutions are highlighted.

The concepts, principles and processes underlying the guidelines are presented in Part Two, "Agricultural communication in the context of agricultural development programs." After establishing the rationale for incorporating effective communication support into agricultural projects and restating the communication problem to be addressed, communication is discussed in relation to other program components--including the non-communication requirements for successful communication support programs. Issues related to communication functions and strategies are then addressed, with emphasis on:

- The need for the communication support program to have a farmer orientation which takes into consideration the characteristics of (and variability in) the project's target population/s.

- Application of behavioral science and social marketing techniques grafted onto the agricultural framework for communication-related investigations, pretesting and formative evaluation.

- Characteristics of major broadcast, interpersonal, and graphic/print media within the context of media networking and media "channel strategies."

- Techniques for improving staff training, adapted in part from other disciplines such as behavioral science.

Part Two closes with a summary of characteristics of successful communication strategies, and a limited discussion on the costs, benefits and cost effectiveness of communication support.

Issues related to the need for, relevance and performance of extension in the LDCs since World War II are addressed briefly in Part Three, followed by discussion of four conceptual extension models--including a suggested "hybrid" extension model to meet today's needs. The urgent need to involve the private sector productively and effectively in technology transfer programs is again stressed. Six projects from Latin America, Africa and Asia that have had strong communication components are then reviewed. Attention is directed specifically to operational systems and processes used in these projects to enable planners to take maximum advantage of such experiences in designing effective communication support into new projects.

The three parts of the paper are bound separately and cross-referenced extensively for convenience in use. Taken as a whole, the three parts provide: a conceptual framework for incorporating appropriate communication strategies into agricultural development projects; guidelines for planning, implementing and monitoring communication strategies and support programs; and examples of projects on whose experiences planners can draw in designing appropriate communication support into existing or new projects.

PART ONE

GUIDELINES FOR INCORPORATING COMMUNICATION STRATEGIES INTO AGRICULTURAL DEVELOPMENT PROGRAMS

Table of Contents

		Page
Foreword and Acknowledgments		
EXECUTIVE SUMMARY		
I.	**The Communication Component**	I- 3
II.	**Planning Effective Communication Support**	I- 5
Step One:	Determine and test relevant assumptions	I- 5
Step Two:	Establish an institutional base	I- 6
Step Three:	Identify information needs	I- 7
Step Four:	Determine existing communication resources	I-11
Step Five:	Develop a preliminary communication strategy	I-13
Step Six:	Estimate communication-related resource needs	I-19
Step Seven:	Integrate the communication strategy into the total project plan	I-24
Step Eight:	The "final" communication strategy	I-25
III.	**Implementing Effective Communication Support**	I-27
A.	Communication component organization, staffing, and management	I-27
B.	Developmental investigation	I-29
C.	Educational programming	I-30
D.	Pretesting and formative evaluation	I-40
E.	Staff training and support	I-41
F.	Interinstitutional coordination/networking	I-44
G.	Summing up	I-45
IV.	**Monitoring Progress**	I-47

Figures

1. The WHO, WHAT, WHY, WHEN of project information needs. I- 9
2. The communication network; an example from Honduras. I-10

3. An illustrative inventory of existing communication resources. I-12

4. An illustrative list of communication media/methodologies that could have utility in the project. I-15

5. The educational programming system concept. I-16

6. An illustrative organizational structure for a viable communication unit. I-17

7. Illustrative staffing patterns for central and regional communication units. I-22

8. The BVE calendar of agricultural messages for 1976 programming in the Occidente region of Guatemala. I-34

AVAILABLE IN SEPARATE VOLUMES

PART TWO

AGRICULTURAL COMMUNICATION IN THE CONTEXT OF AGRICULTURAL DEVELOPMENT PROGRAMS

I. The Rationale
II. The Problem
III. Communication in Relation to Other Program Components
IV. Communication and Communicator Functions
V. Communication Strategies
VI. Characteristics of Successful Communication Strategies
VII. Costs, Benefits and Cost Effectiveness
VIII. Relevant References

PART THREE
EXTENSION AND COMMUNICATION MODELS

I. The Case for Extension
II. Conceptual Models
III. Basic Village Education in Guatemala
IV. Masagana 99 in The Philippines
V. Mass Media for Agricultural Extension in Malawi
VI. Distance Learning in Lesotho
VII. Communication System for Rural Development in Mexico
VIII. Mass Media and Health Practices in Latin America and Africa
IX. Summary of Lessons Learned about Communication Support

PART ONE

GUIDELINES FOR INCORPORATING COMMUNICATION STRATEGIES INTO AGRICULTURAL DEVELOPMENT PROGRAMS

The current strong interest in effective agricultural communication support to increase agricultural development project impact is illustrated by the following examples of AID-supported projects proposed or in an early implementation stage as of this writing.

In Honduras, the National Agricultural Research Foundation (FHIA) now being established with USAID support is organized into two divisions--Research and Communication--in recognition of the importance of communication in the transfer of improved technologies from research to farmers, as well as in developing and maintaining support for FHIA's research programs. The FHIA Communication Division will collaborate closely with the Honduran Ministry of Natural Resources Extension Service in disseminating information to and obtaining feedback from Honduran farmers.

In Malawi, the Extension component of a new USAID-supported Agricultural Research and Extension Project (MARE) will focus sharply on the development and integration into the project of a strong communication support system.

The purpose of an AID/S&T worldwide project on Communication for Technology Transfer in Agriculture (CTTA) will be to develop and demonstrate a more effective communication support system for technology transfer in agriculture. CTTA will develop and test methodologies which graft behavioral science and social marketing concepts and procedures onto an agricultural communication framework through pilot projects at one primary site (Honduras) and up to eight collaborating sites in Latin America, Africa and Asia/Near East. The CTTA project will also include a set of substantive diffusion activities to make its results readily available to AID and other international and national agencies and programs throughout the world.

Those responsible for designing such projects have taken advantage of what we now know about how to organize and use communication support effectively in a wide variety of conditions and settings. Some of this knowledge has come from projects and programs such as those reviewed in Part Three, some through research and experience in behavioral science and social marketing, and some through development and application of new communication technologies and methodologies.

No comprehensive communication model has yet been developed that is applicable to all programs and projects. Nevertheless, current experience is sufficient to permit synthesis into practical guidelines for planning and implementing effective communication

support into agricultural development programs and projects.

The set of guidelines presented in this section is designed for use by the AID field project officer, his Host Country Counterparts, and others responsible for determining **which** communication technologies/methodologies to use, and **how**, to achieve maximum project impact at reasonable cost--people who typically have insufficient time and resources for in-depth study and assessment of communication needs and potentials, and who may have had limited previous experience or training in agricultural communications.

I. The Communication Component

Communication is the process through which information is sent, received and exchanged. The communication component of an agricultural development program involves the systematic application of communication technologies, methodologies and skills to disseminate information to and receive feedback from targeted groups of people, and to facilitate the exchange of information among all directly and indirectly involved in the program.

In a technology transfer project, for example, the communication component provides the means through which farmers receive information about improved technologies, and researchers receive feedback from the field about farmers' experiences in using those technologies. Beyond that, it points to the need for further research and provides an exchange between all agencies, institutions and project components, including elements of the private sector.

Therefore, the communication component is a supporting element of the agricultural development program. The agricultural communicators process information into forms most suitable for its intended audiences; participate in information dissemination and continually evaluate its appropriateness and impact from the standpoint of the receiver; and channel feedback information to those who can benefit from or must act upon it. Although communicators do not determine overall program objectives, target audiences or basic program content, they have an important role as catalysts in making such determinations.

Communication support can be effective only to the extent that the communication component functions as an integral part of the total program.

For purposes of program or project planning and implementation, it is useful to consider the communication support input in two parts--the communication strategy and the communication component. Such identification helps to assure that communication support will receive appropriate priority in overall planning and implementation, and that communication technologies and methodologies will be used appropriately to meet the needs and objectives of the program.

The <u>communication strategy</u> is a plan for changing human behavior through the transfer of new information or ideas. In the context of an agricultural development program or project, development of this strategy starts with consideration of the program objectives and target population, and the specific behavioral objectives toward which communication support is to be directed.

10

The communication strategy will include objective-based plans for:

- Communication-related investigation.
- Selection of communication media and methodologies.
- The educational programming system required to meet the determined behavioral objectives.
- Ongoing formative evaluation and pretesting.
- Systematic collection and distribution of needed feedback.
- Development of a viable communication network.
- Systematic communication-related staff training and support.

The development of a viable strategy requires inputs from, and interaction with, all members of the overall program planning team at every stage.

The <u>communication component</u>, an integral part of the total program planning and operations system, will provide the set of staff, facilities, and equipment needed to implement the strategy. Some staff, facilities and equipment will be largely internal to the component (e.g., radio production or printing facilities and technicians). Others, such as message development or evaluation staff, will work in close association with staff in other program components. Staff from other phases of the program (e.g., field extension staff) will also be major contributors to the communication support effort.

11

II. Planning Effective Communication Support

Effective communication support is contingent upon sound planning. A straightforward process through which needed information can be obtained and analyzed, and a viable communication strategy developed, is suggested in the guidelines proposed below. For convenience and simplicity, the term "project" is used throughout to connote either a program or a project.

Step One: Determine and Test Relevant Assumptions

The first step in planning effective communication support will be to determine and test a series of assumptions about the project as a whole. The assumptions which are relevant will obviously vary from project to project. Among those generally applicable to agricultural development projects are:

- A problem has been identified which is of sufficient magnitude to justify the allocation of resources to to alleviate it.
- Viable solutions to the problem, or possibilities for its alleviation, either exist or can be developed through the project. (See Part Two, Section IIIB.)
- The host government is sufficiently interested in the problem and its solution to provide the counterpart support required for successful project implementation.
- Solution or alleviation of the problem will require some type of change--adoption of a new practice or way of doing something, reinforcement of present desirable behavior, etc.
- The target audience/s (those who must change in some way to alleviate the problem) has/have been identified and characterized in at least general terms.
- Constraints to the desired change--such as inadequate infrastructure or lack of needed services and inputs--have been or can be alleviated significantly.
- A viable organization exists (or will be established) through which the project, including its communication component, can function effectively to achieve project objectives.
- Both the host country and donor agency are committed

12

to make full and effective use of available communication channels across all collaborating public and private sector institutions in providing communication support to the project.

(Two additional assumptions are made to simplify the discussion which follows: 1) that farmers are the target audience; and 2) that adoption of improved agricultural technology is the desired change.)

As the first step in designing the communication strategy, establish the validity of the relevant assumptions. If they are not valid, the best possible strategy may make little difference. If they are, a communication strategy planned and implemented along the lines suggested in this and the following chapter can greatly increase total project impact.

Step Two: Establish an Institutional Base

The plan for providing effective communication support must be developed within the context of the project's institutional base. Existing facilities and equipment, human resources, organizational structure, lines of authority, resource allocation policies, internal functional relationships, and relationships with other relevant institutions will all be as critical to developing an effective communication support plan as they are to total project design and implementation.

The existence of a viable organization through which the project can function will have been established in Step One, and the project's institutional base will have been determined before communication support plan development is started. At this point, identify the communication component's "home" within that base.

It is preferable to institutionalize the communication component within the existing host country framework rather than to create a new entity or to function through some other institution. If that is not feasible, and the communication component has to be based in some other institution (public or private), it is imperative that coordination/control mechanisms and other safeguards be built into the communication support plan to ensure integration of the communication input. Isolation of the communication support program from the project must be avoided at all costs.

Major decentralization of communication-related activities into the region/s in which the target audiences are situated is desirable to facilitate localization of communication interventions, collection and analysis of feedback, developmental investigation and formative

evaluation, pretesting of media materials, and integration of the communication input into the total program of the project. (Refer to Part Two, Section VB, for a more detailed discussion of the rationale for decentralization.) The extent of decentralization will depend upon the organizational structure of the institution with which the project is associated as well as the nature and magnitude of the project, and other resources available at the regional level.

The need for decentralization notwithstanding, support and reinforcement will also be required at the central level. Understanding and active support of policymakers will be critical to developing and maintaining adequate budget support, and for institutionalizing what will in most cases be a rather radical departure from conventional extension. Development of linkages and networking with other institutions (such as research and agro-support institutions) will require both support and action at the central level. Media production facilities are most apt to be found at the central level. Also, if the project encompasses more than one region, establishment of some facilities (e.g., a print shop with capacity to produce large volumes of printed materials in a range of sizes and formats) at the central level to serve all regions will be more cost-effective than duplicating all such facilities in each region.

To plan realistically, establish the parameters of the institutional framework within which the communication component will function as early as possible in the planning process.

Step Three: Identify Information needs

Determine who needs what kinds of information, why they need it, and when. Identifying information needs requires inputs from all members of the project planning team, as well as from others knowledgeable about the proposed project, its objectives and its target audience/s. The role of the planner will be to coordinate these inputs, encourage interaction to solidify conclusions, and to organize the results into a format for future use.

The ultimate objective of the program will be to convey information about improved agricultural technology to farmers so that they will adopt the improvements. This statement defines one "who" (farmers) and one "what" (improved agricultural technology) of the project's information needs. The "why" is to induce farmers to adopt the improved technology. The "when" will depend upon the nature of the technology and when farmers need the information.

The project will also have an array of other information needs, such as:

- Field staff who work directly with farmers will need reasonably in-depth knowledge about the improved technology and must be kept up to date on latest developments concerning its application.

- Researchers will need feedback from the farmers concerning problems encountered in use of the technology.

- Communication staff will need feedback about the acceptance and impact of their media presentations.

- Planners and administrators will need to be kept informed about the progress of the project, its resource needs, etc.

- Agri-business firms will need information about the inputs required by farmers who adopt the improved technology, and where, when and in what quantities the inputs will be needed.

Although some information needs are common to most projects, others will be specific to the particular project being planned. It is suggested that the who, what, why and when of total project information needs for the project be organized into a format such as that illustrated in Figure 1 for ease in compilation and future reference.

The information needs determined at this point in development of the communication support plan will be preliminary, based largely on accessible existing data, and knowledge and experience of the project design team, host country staff and informants. They will be studied in depth and refined, expanded, modified, and/or corrected through developmental investigation (discussed in Part Two, Section VB2) as the project moves into the implementation stage.

One of the functions of communication component staff will be to collaborate with staff of other project components in development and management of a communication network to assure that program action and progress are not constrained at any point by an information bottleneck. Members of the network should include all institutions and people involved directly or indirectly in the project and identified in the "who" of the project's information needs. The communication network concept is illustrated in Figure 2, taken from an analysis of the Honduran agricultural communication situation (Ray 1984).

Mechanisms will be needed to facilitate the flow of information to, from, and among all network members. Telephone, teleconfer-

WHO	WHAT	WHY	WHEN
FARMER	Knowledge about the technology, its potential benefits to him and how it can be used in his farming enterprise	To make him aware that it exists and convince him to try it	Ideally, the year before you want him to try it, but at least several months in advance
	Instruction in how to use the new technology	To enable him to try it successfully	The complete instructions at least a month in advance, repeating each step just before he will do it
	Where to get help if he has problems, and where he can obtain the inputs he needs	To give him confidence to try it, and enable him to get the required inputs	In the initial "knowledge" message, and timed with "instruction" messages
EXTENSION STAFF IN FIELD	Knowledge about the technology and its potential benefits to the farmer	To enable them to take the information to the farmers, reinforcing what they have heard through other channels and providing more complete information	Before the information program is initiated
	Details about how to use the new technology	Same as above	Before the information program is initiated and periodically throughout the program
	Sources of assistance and inputs that may be needed by the farmers	Same as above	Same as above
COMMUNICATION STAFF	Detailed information about the technology, its potential benefits to the farmer, where and how the farmer can obtain help and inputs, and other information implied above	To develop message presentations in the various media to be used that will contain accurate and complete information	Before the program is initiated, and at least two months in advance of each of the steps above
	Information and understanding about farmers as discussed in Part TWO, Chapter V	To develop message presentations in the various media that are comprehensible, acceptable and convincing to the farmer	Before the program is initiated and periodically updated throughout its duration
	Feedback from farmers about the comprehensibility, acceptability and reaction from the farmers perspective	To improve the output of the communication subsystem, and add, modify or delete communication media/methodologies as needed to obtain the desired impact	Continually throughout the course of the program
POLICY MAKERS ADMINISTRATORS	Resource requirements, with justification, program objectives, potential program benefits	To obtain the resources required for the program, and to generate support for it	During the project design stage
	Reports of program progress	To maintain understanding of and support for the program	Periodically throughout the course of the program
	Problems that require incourse adjustments in the program	To gain support for making such adjustments, and informed decisions regarding same	As the need arises
	Revised estimates of resource requirements	To enable administrators to make informed decisions regarding same	As the need arises
RESEARCHERS	Feedback from farmers regarding their experience in using the new technology---successes and problems	To enable the researchers to help the farmers deal with problems encountered, and to continue to improve the new technology	Continually throughout the course of the program
AGRI BUSINESS FIRMS	Knowledge about the new technology and how it should be applied	To enable them to answer farmers questions and gain their support for promoting the new technology	At or before the time the farmers are first informed about the new technology
	What inputs will be required, and where and when	To enable them to have the input available to the farmers at the time, in the place, and in the quantities needed	Several months in advance of the need for each given input
Etc.	Etc.	Etc.	Etc.

Figure 1. The WHO, WHAT, WHY, WHEN of project information needs.

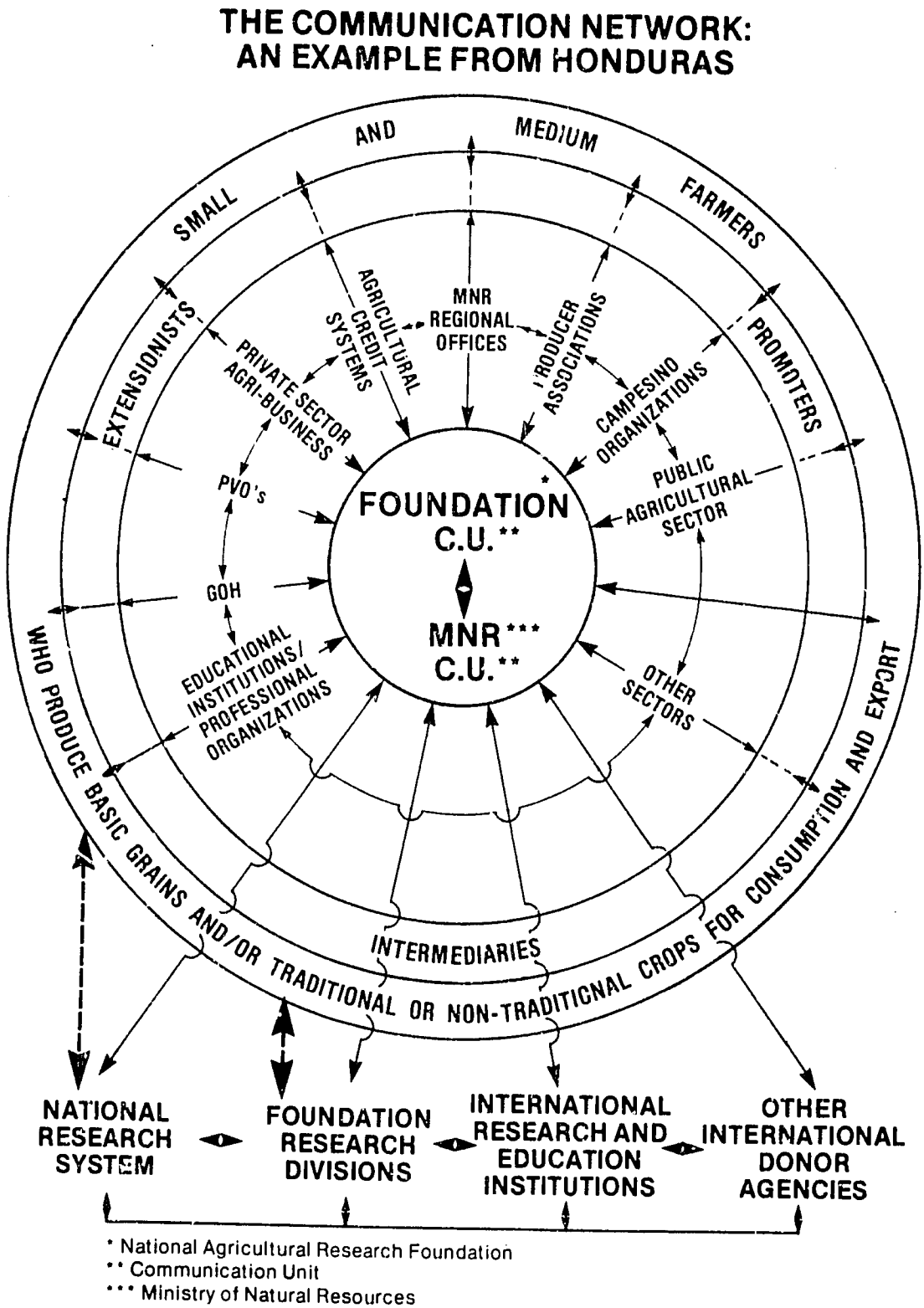

Figure 2. The communication network; an example from Honduras. (From Ray 1984)

encing, telex, personal contacts, meetings, reports, two-way radio, and computer networks are among the possibilities. Whatever the mechanisms used, communication through the network will be sporadic unless it is effectively coordinated and managed.

Include a preliminary plan for developing and managing the communication network as an integral part of the communication strategy.

Step Four: Determine Existing Communication Resources

The ways to convey information are innumerable. The specific media selected are frequently less important than how they are combined and used. Therefore, use of appropriate existing resources can result in lowering communication-related investment costs without jeopardizing project impact.

Make an inventory of existing private and public sector human resources and communication facilities that could be used in the communication support program. Keep in mind the advantages of using media and communication methodologies which already have a degree of credibility among the various audiences to be reached. A typical inventory might look something like that illustrated in Figure 3.

To save time later, make a preliminary assessment of each resource's adequacy in relation to anticipated project needs at the time the inventory is taken. In the case of human resources, using the Extension Service as an example, some of the relevant questions would be:

- How are the field extensionists distributed in relation to the farmers to whom the project will be directed? What proportion of the farmers do they presently contact regularly?

- How well trained are they technically and as communicators?

With respect to communication facilities--such as an extension media unit, radio studios and transmitters, or print shops:

- Is the facility reasonably well-equipped and staffed, and in what condition is the equipment?

- What is the facility's capacity? Is it already being used to full capacity?

- What would be its availability to the program, and at approximately what cost?

Most of the information required for the inventory and preliminary

TYPE	DESCRIPTION	COMMENTS	POTENTIAL AVAILABILITY TO PROJECT
HUMAN	Field extensionists	96 in region	yes
	Extension supervisors	4 in region	yes
	Extension media production	2 editors 1 artist 1 radio producer Print shop staff	yes yes yes parttime
	PVO's	5 PVO's with total of 23 staff in region	parttime
	Agri-business firms	14 firms with total of 47 staff working full or parttime in region	possibly
	Producer associations	2 with 2 technicians	yes
	Agricultural credit banks	1 national, 2 private with total of 7 credit agents	parttime
	Etc.		
FACILITIES	Extension media unit	Radio, print, A/V video	yes
	Radio stations	1 national 2 private	yes sell services
	Offset printing	3 private firms 1 government printing office	sell services yes
	Telephone	To only major towns	yes
	Movie theaters	In all major towns	sell services
	Etc.		

Figure 3. An illustrative inventory of existing communication resources.

assessment will be easily accessible, so no large investment should be required to complete this step. The purpose is to catalog potential resources which are already in place, and to get a general sense of their adequacy and availability. Later, a fuller investigation will be made of those relevant for the communication strategy.

Step Five: Develop A Preliminary Communication Strategy

To recap, the following types of information should now be available for use in developing the preliminary communication strategy:

- Overall project purpose and objectives.
- General knowledge about the project's target audience/s.
- The organizational framework within which the communication component will function.
- Parameters of the project's technical content.
- Information needs of the project.
- Inventory and preliminary assessment of both public and private existing communication resources.

Development of a preliminary communication strategy can now be undertaken. As stated earlier, it is vital that all members of the project planning team be actively involved in this process.

It is strongly recommended that the services of an agricultural communication specialist be engaged to assume leadership in strategy development, because it will require specialized expertise and experience. If this is not possible, the strategy will of necessity be more general and many of the details will have to be worked out during the early stages of project implementation.

Include the following ten points in the preliminary strategy statement:

1. <u>Statement of project objectives and the project's anticipated target audiences</u>.

2. <u>Statement of the behavioral objectives toward which communication support is to be directed</u>.

   These objectives, derived from the project objectives in collaboration with the other members of the project planning

20

team, should be as specific as possible. Refer to Part Two, Section VD, for guidance in determining the behavioral objectives.

3. A preliminary plan for developmental investigations to be conducted.

For the purposes of the strategy, developmental investigations may be defined as investigations to determine the socio-cultural-economic characteristics of the target audience/s, including their internal variability. Refer to Section IIIB below, and Part Two, Section VB2, for guidance in developing this plan (which should also include preliminary estimates of resource and training requirements).

4. Plan and criteria for selection of communication media and methodologies to be used, utilizing combinations of mutually reinforcing media to obtain maximum impact.

Refer to Part Two, Sections VA and VE, for discussion of this topic, and to Part Three, Sections III-VIII, for information about how media have been used in other projects.

Several media with different characteristics will usually be used for reinforcement and repetition to achieve maximum impact. Therefore, as illustrated in Figure 4, organize potentially useful media and methodologies into categories such as broadcast, print, interpersonal, and group/community.

5. Description and preliminary plan for phased development of an educational programming system.

The project's educational programming system must have the capacity for: ongoing planning and strategy development; development of message content (including liaison with information sources); production of high quality educational materials in all media to be used in the communication support program; and delivery of information to the target population/s. The preliminary plan for the system should indicate general resource and training requirements, taking into consideration existing resources already identified.

The system is conceptualized in Figure 5, adapted from the Guatemala Basic Village Education Project. To assist in structuring the system, an illustrative organizational structure for a viable communication support program, assuming the establishment of both central and regional communication units, is shown in Figure 6. For additional guidance refer to Section IIIC below, and Part Three, Section III.

MEDIA GROUP	GROUP CHARACTERISTICS	REPRESENTATIVE MEDIA / METHODS
BROADCAST	Many people can be reached quickly Best for relatively simple messages Can be localized and personalized, although radio is usually considered to be an impersonal media Radio can be extremely low cost per contract hour Best when used in combination with interpersonal and/or group contacts	Radio Television
PRINT	Best for providing complex information in a form that can be used for later reference Most forms require literacy, but this problem can be surmounted in part through use of appropriate graphic materials	Bulletins Leaflets Flyers Posters Flipcharts Comic books Photonovels
INTER PERSONAL	Still the best way to teach and develop credibility over time High cost per contact hour and the number of people that can be reached is limited Effectiveness depends in large degree upon the basic communication skills of the change agent--extension agents, paraprofessionals, volunteers, agri-business representatives, etc.	Conversations Demonstrations Telephone Field trials
GROUP COMMUNITY	More people can be reached by each agent Opportunity for group interaction enhances value of contact and possibility of change Less costly per contact hour than one-on-one contacts	Demonstrations Audio cassettes Videotapes Plays and Dramas Puppets Flipcharts Field days

Figure 4. An illustrative list of communication media/methodologies that could have utility in the project.

22

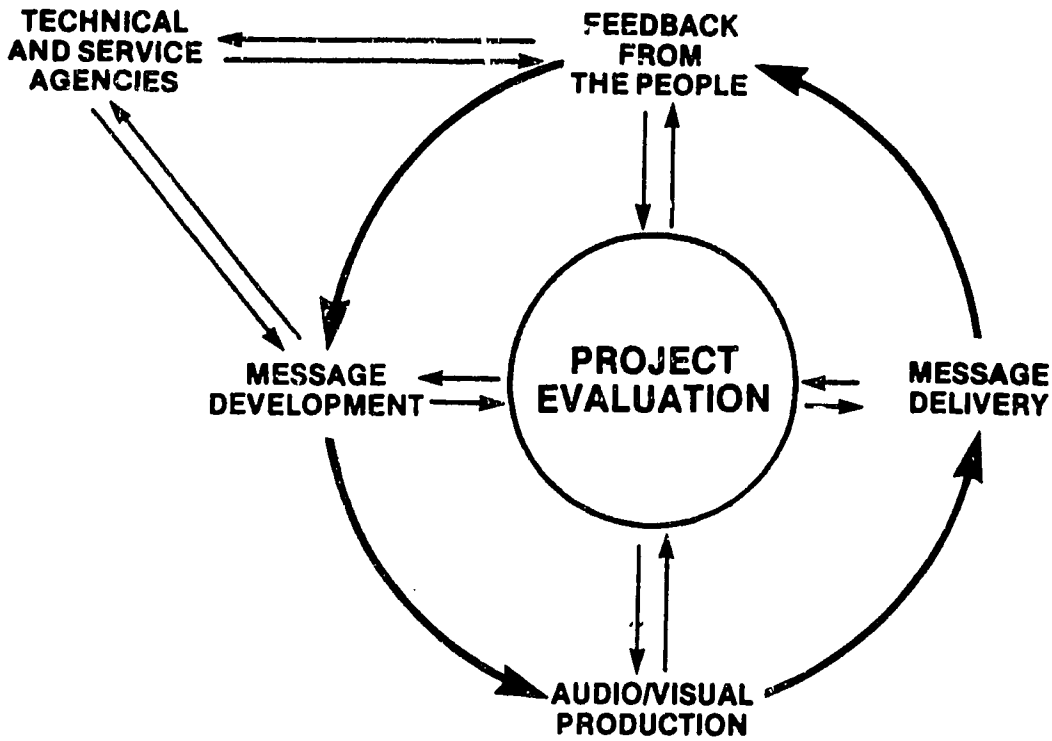

Figure 5. The educational programming system concept. (From AED 1978)

6. <u>Preliminary plan for an ongoing formative evaluation and pretesting program</u>.

Include in the communication support plan the objectives, methodologies to be employed, work to be scheduled, and how results will be fed back into the program to make in-course corrections and improvements (indicating preliminary estimates of resource and training requirements). For guidance, refer to Section IIID below, Part Two, Section VB2, and to the case examples in Part Three, particularly the Basic Village Education Project (Section III).

7. <u>Identification of the kinds of feedback required to satisfy all information needs identified in Step Three of the planning process</u>.

Also include a preliminary plan for systematic collection and distribution of such feedback to those who can act on or benefit from it, with preliminary estimates of resource and training needs (see Part Two, Section VB2).

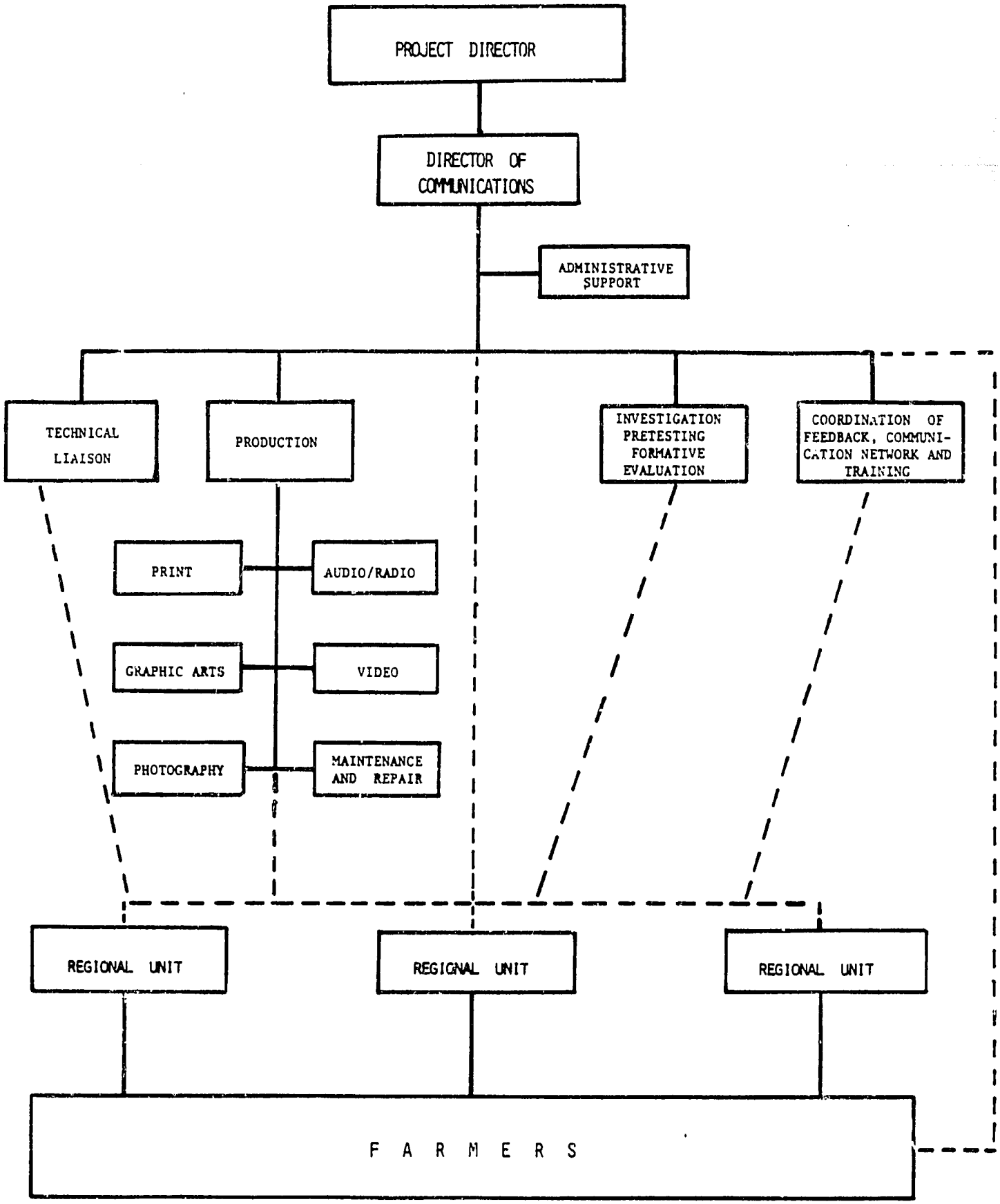

Figure 6. An illustrative organizational structure for a viable communication unit.

24

8. Plan for establishing and managing a communication network to facilitate the two-way flow of information between and among all institutions and people identified in Step Three.

Specify who will be included in the network, dissemination mechanisms to be employed, and resource requirements for its management. From the standpoint of practicality and manageability, it may be desirable to limit the members of the network at the outset to those who are most directly involved in or will impact most directly on the project. As the project progresses, the network should be expanded to include all relevant institutions as discussed briefly under Step Three (see Part Two, Section VF).

9. Staff training and support plan.

The objective will be to develop and/or strengthen the capabilities of staff at all levels to contribute fully to implementation of the communication support component of the project. Refer to Section IIIE below, and Part Two, Section VG for guidance in developing the communication-related training and staff support plan.

10. Communication component management plan.

The importance of effective management cannot be overemphasized. At the project level, communication component management will obviously come under the purview of the Project Director. It is at this level that much of the coordination and integration of communication support activities will be accomplished.

The need for effective internal communication component management will be equally critical and demanding. An array of activities for which the communication component is responsible must be undertaken concurrently, with the results from one feeding into others. The communication interventions will be highly time-specific, so planning, media production and dissemination must be coordinated and adhere to a tight schedule. Many activities of the communication component will involve joint planning and action with other project components and with outside public and private organizations.

The communication component management plan must be consistent with the project management plan and appropriate for the institutional framework within which the project will function. It must provide flexibility, recognizing that the system will change and grow in expertise and capability, and that new elements may be introduced or present elements modified.

25

Use the illustrative communication support program organizational structure presented in Figure 6 for guidance in developing the communication management plan, tailoring it to the specific situation and needs for the project being designed.

At this point, the ten-point preliminary communication strategy will be essentially complete. It will require modification, refinement and greater specificity as the project approaches the implementation stage--and throughout implementation. If carefully developed, however, this preliminary strategy will provide a sound basis for estimation of communication-related resource needs and associated costs, and for integration of the communication component plan into the total project design.

Step Six: Estimate Communication-Related Resource Needs

The magnitude and nature of communication-related resource needs will vary widely from project to project, depending upon the scope and objectives of the project and existing host country expertise and resources that can be mobilized. Some resource needs and associated costs can be assigned specifically to the communication component. Other costs, such as extension agent and subject matter specialist salaries and operational support, are usually assigned to other project components.

For such reasons, it is not realistic to construct a "model" budget. Illustrative costs from other projects are given in Part Two, Section VII, to provide general guidance, however; and guidelines are suggested below to help quantify communication-related resource needs.

1. Facilities and equipment

The facilities and equipment required for production and dissemination of information will probably be a combination of those belonging to the project and those of outside private sector firms and public and private sector institutions. Depending upon the nature of the project and its scope, media production and dissemination may be concentrated at the regional level, at the central level (as in the Lesotho model reviewed in Part III), or divided between central and regional levels (as planned in Malawi--see Part Three).

- From the communication strategy, determine the principal media to be used in the communication interventions, and the types of presentations anticipated for each.

- From the survey of existing communication-related resources, determine production and dissemination

26

facilities (particularly for broadcast and print media) that could be utilized cost effectively, either on some reciprocal agreement basis or through contracting for needed services or products.

- Taking project needs and location of existing capabilities into consideration, determine how production and dissemination responsibilities will be divided between central and regional levels.

- If production will be divided between central and regional facilities, plan for production of more sophisticated materials and those needed in large volume to be done at the central facility. At the regional facility, use low or medium technology production methods (recognizing the costs involved in equipping and staffing multiple regional units, the difficulty of repairs, and the fact that staff will be less highly skilled in production methods than central communication staff). In the case of print media, for example, the combination of a well-equipped print shop with offset presses and auxiliary equipment at or available to the central facility and an electronic scanner/mimeograph unit in the regional facility can both minimize equipment costs and serve the needs of the communication program adequately.

- Provide installations and equipment to supplement existing equipment either in the communication unit's home institution or on the outside. For example, the Guatemala BVE project (reviewed in Part Three, Section III) installed and operated radio transmitters in each of its regions to satisfy the stringent requirements of its experimental design. This is <u>not</u> recommended for ongoing projects if appropriate arrangements can be made with existing national or private radio stations.

- Enlist the services of local media specialists or short term technical assistants to identify, develop specifications for, and determine costs of the specific equipment items required to meet the communication component's production and dissemination needs.

- Consider including essential transport (such as jeeps, motorcycles, bicycles) in the plan and budget. The productivity of agricultural communication staff and units in most LDCs is presently constrained seriously by lack of adequate mobility.

The above guidelines relate most specifically to needs related to dissemination of information to target groups of farmers. Some of the facilities and equipment used for this purpose will

also be relevant for the feedback and communication network elements of the communication component. Additional needs for these purposes should be identified and quantified through a similar process.

2. Communication-related staff

It is assumed that the host government will provide all communication-related staff in the project, other than specific technical assistance and some temporary staff.

One of the objectives in determining staff needs should be to minimize increases in recurrent costs, since most LDCs will not otherwise be able to sustain the communication support program after the project has been completed. This is particularly critical for staff increases, because personnel costs already constitute an extremely high proportion of the typical LDC extension budget.

- Use existing staff (and vacant staff positions) in the "home" institution for staffing the communication component. Intensive training of staff presently in communication-related positions will meet at least part of the need. Some restructuring of the present organization to permit reassignment of potentially suitable staff may be feasible, followed with intensive training in the skills and understandings required to meet the demands of the new position. Use of outside resources for production and other communication-related jobs will lessen the need for additional staff. <u>Explore all such possibilities before deciding to add more permanent staff for the communication component</u>.

- Include both central and regional needs in determining communication component staffing requirements.

- Temporary or parttime staff may be required to serve as interviewers, for special events, etc. These needs will be greater during the project than during an ongoing program.

- Plan maximum use of extension staff and other potential diffusion agents (from both the public and private sectors) for dissemination of information through interpersonal contact, to collect and distribute feedback information, and to operate the communication network.

Estimated staffing requirements adapted from a proposed major agricultural communication support program in Honduras are shown in Figure 7 for guidance in identifying the types of staff required for the communication component. These requirements assume that virtually all materials production will be done in-house.

	AREA	POSITION	NUMBER OF STAFF REQUIRED		
			OPTIMAL	INTERMEDIATE	MINIMAL
CENTRAL ACU	DIRECTORATE	Director	1	1	1
		Secretary	1	1	2
		Administrative officer	1	1	
		Administrative assistant	1	-	1
		Accountant	1	1	
		Assistant accountant	1	-	
		Supply/distribution officer	1	-	-
		File clerk	1	-	-
		Janitor	2	2	1
		Driver	4	3	2
	PRODUCTION SECTION	Section Head	1	1	1
		Secretary	1	1	-
		Head, investigation/evaluation	1	1	1
		Evaluation specialist	1	-	-
		Interviewer/analyst	3	3	1
		Technical liaison officer	2	1	1
		Coordinator, training and communication network	1	-	-
		Writer/editor	2	2	1
		Audio director	1	1	1
		Sound technician	1	1	-
		Video director	1	-	-
		Video cameraman	1	-	-
		Video assistant	1	-	-
		Photographer	1	1	1
		Photographer's assistant	1	-	-
		Artist	4	2	1
		Maintenance technican	1	1	1
		Maintenance assistant	1	1	-
	PRINT SECTION	Section Head	1	1	1
		Secretary/composer	3	3	2
		Editor	1	-	-
		Office machine operator	1	1	1
		Photographer	1	1	1
		Photo-mechanic	1	1	1
		Photo-mechanic assistant	1	1	1
		Offset press operator	4	4	4
		Collater/binder/packager	4	4	4
REGIONAL ACU PER UNIT		Unit coordinator	1	1	1
		Other professional	5	3	2
		Secretary	1	1	1
		Driver	2	1	1

Figure 7. Illustrative staffing patterns for central and regional communication units. (Adapted from Ray 1984)

The staff complement can be reduced where a significant proportion of the production will be contracted to outside firms/institutions.

3. Operational costs

Enlist the services of the people used in determining facility and equipment needs to assist also in developing operational cost estimates.

Keep in mind that:

1. Material and supply requirements will be governed by the volume of production anticipated in the project.

2. Equipment maintenance and repair costs are often underestimated, particularly for long term projects.

3. Materials to be disseminated--recorded radio programs, teaching aids, printed materials, etc.--must be distributed to the point of dissemination on time. Except for cases in which such distribution is made through normal staff travel, distribution costs must be anticipated in budget estimates.

4. An inadequate budget for vehicle operation and maintenance and other travel-associated costs is false economy as it will result in lowered staff productivity.

Be sure to:

- Include anticipated costs of contracted production and services, including such items as purchased air time, in the communication component budget.

- Take advantage of all possibilities for sharing costs with other project components and non-project collaborators--both public and private sector.

- Include needs for feedback distribution and networking in the estimated costs of communication as well as telephone, telegraph, mailings, etc.

- Provide a contingency allocation to take care of unanticipated operational costs.

Flexibility will be needed to adjust expenditures within the various items in the operational expense budget, because needs and procedures will be modified as the project progresses.

4. Staff training

As discussed in Section IIIE below, several categories of training

30

will be required. It is virtually impossible to generalize about training costs, because they will vary greatly depending upon levels of training and experience of communication-related staff assigned to the project. The following parameters and Part II, Section VG should be helpful, however.

- On-the-job and in-service training, combined with effective technical backstopping and support, will be preferred to satisfy most training needs. Use locally available talent, supplemented by technical assistance.

- Out-of-country degree or non-degree training may be required for a few key staff in areas such as mass communication strategies or evaluation.

Training costs can be minimized through incorporating communication-related training into other staff training events, particularly those involving extension workers and other potential public and private sector diffusion agents. Therefore, estimated training costs should be developed in collaboration with other members of the project design team.

5. Technical assistance

Communication-related technical assistance must be tailored to the specific needs of your project. Based on experience in similar projects in a number of countries, one long term agricultural communication specialist to assist with development and implementation of the total communication strategy is frequently justified. Short term technicians in specialized areas for which in-country expertise is deficient can normally meet other technical assistance needs.

6. The total budget estimate

The bottom line of the communication component budget estimate will include resource requirements for all elements in the preliminary communication strategy. Since these elements are highly interrelated, changes in one will affect all others. Therefore, if total estimated costs exceed the resources available for communication support, the entire communication strategy must be reassessed. Refer to Part Two, Section V, for guidance in making such adjustments to resource constraints.

Step Seven: Integrate the Communication Strategy into the Total Project Plan

Planning effective communication support started with verifying a series of assumptions about the project as a whole. Step

Two involved establishment of an institutional "home" for the communication component within the project's institutional base.

Identification of information needs in Step Three included all project information needs, not just those of the communication component. The inventory of existing communication resources, Step Four, included extension workers and other potential public and private sector diffusion agents as well as those conventionally considered to be communication resources. Development of the communication strategy, Step Five, involved collaboration and interaction among communication staff and other project staff throughout. The possibilities for holding down communication component costs through sharing of facilities and joint action with other project components were stressed in Step Six.

The final step can now be taken to integrate the communication component into the total project through refining the communication strategy and incorporating it into the final project design. Critical to effective integration will be:

- Recognition that communication involves everyone associated with the project--it is not the exclusive domain of the communication staff.

- Clear lines of responsibility, authority and communication between and among project managers, other project staff, and communication staff.

- Full participation of communication staff at all stages of project planning and program development, project staff meetings and review sessions, and related activities dealing with project implementation, management, and evaluation; and vice versa.

- Freedom of communication staff to call on other project staff for assistance and collaboration in all communication related activities; and vice versa.

Only if the communication strategy is an integral part of project design, and communication support an integral part of project implementation, can communication contribute most effectively toward achievement of project goals and objectives.

Step Eight: The "Final" Communication Strategy

A communication strategy can never become "final". It must have built-in flexibility to permit rapid response to changing circumstances, needs, and opportunities. As institutionalization of the communication support program progresses, there will be changes and growth in staff expertise and capabilities; and

staff roles will evolve accordingly. More efficient ways of collecting, processing and disseminating information will be developed. Researchers, extensionists, and others associated directly or indirectly with the project (including both public and private sector institutions) will increasingly recognize the role of communication in helping them to achieve their own objectives and improve their own communication skills; and they will more and more call upon communication staff to help them.

In short, the preliminary communication strategy developed at the project planning stage will be only the first step in a dynamic, iterative process that must continue so long as the project continues. Moving from the preliminary plan to continuing action is the subject of the next section.

III. Implementing Effective Communication Support

The communication strategy developed during the planning phase will provide the framework for implementation of the project's communication support program. It is assumed that during the planning stage the project design team has:

- identified and tested the relevant assumptions as discussed in Section II, Step One, and that the results have been positive;

- established an appropriate institutional base for the project and "home" for the communication component (as discussed in Section II, Step Two) with sufficient built-in flexibility to permit the efficient and effective use of outside public and private sector institutions and firms for certain functions;

- incorporated the communication component into the project plan to assure that communication strategy implementation will be integrally linked into all other project activities, and that communication support will contribute fully to achievement of project purposes and objectives.

If the communication support plan and strategy are sound, and if the above assumptions are valid, it should now be possible to move with confidence from plan to action. Refinement and adjustment of the strategy will be necessary to synchronize communication support plans and activities with development of other project components. As emphasized earlier, such refinement/adjustment is an iterative process that begins during the planning stage and must continue throughout the life of the project.

A. Communication Component Organization, Staffing, and Management

The institution within which a project functions typically will have developed over an extended period of time, and will have undergone modifications in response to shifts in government priorities, policies and interests. Over time, an accumulation of regulations and policies may have resulted in loss of the flexibility in decisionmaking and operation, staff recruitment and reassignments, and other factors needed for dynamic and effective project action--including communication support.

Two other frequently encountered constraints to effective communi-

34

cation support are: 1) isolation of communication-related functions; and 2) lack of established and functioning interinstitutional networking and coordination mechanisms, making it difficult for those directly responsible for communication support activities to interact freely with critical information sources.

The plan for organization, staffing and management of the communication component will have taken such factors into consideration (Section II, Steps Two and Five). Reassess this plan in depth and make any needed modifications during early implementation. Efficient and dynamic organization, management and coordination of communication support activities in conjunction with all other project components will be critical to the viability of the communication interventions.

Use the following guidelines to facilitate selection of the most suitable individuals to fill the staff complement included in the plan:

- Prepare job descriptions for all positions which clearly delineate required qualifications and anticipated responsibilities.

- Select key staff, such as the communication director and production section head (see Figure 7), on the basis of relevant experience and their knowledge of agricultural communication principles, systems, media, and methodologies. Prior administrative experience, although needed, will not in itself be sufficient.

- Select individuals who already meet the required qualifications for positions requiring specific expertise or skills, such as the head of investigation/evaluation or a graphic artist. Where this is not possible, select individuals who have interest in and aptitude for such work, and put them into training immediately. (In the latter case, technical assistance may be required to fill the gap on an interim basis and/or impart on-the-job training.)

- Other positions (such as technical liaison, scriptwriters, and evaluation assistants) can be handled adequately by staff who have the basic skills, training and/or aptitude to enable them to pick up their new responsibilities quickly, even though they may have had no previous experience in the particular type of assignment.

The illustrative organizational structure and staffing patterns suggested in Figures 6 and 7 will be used in the sections which follow to indicate staff responsibilities for the various functions related to implementation and management of the communication support program.

B. Developmental Investigation

The need for, use of, and techniques for conducting developmental investigations are discussed in greater depth in Part Two, Section VB2. Although a preliminary plan for developmental investigation will be included in the communication strategy, it will require fleshing out and more detailed planning as an early step in implementation. A summary of developmental investigation purposes and methodologies is presented below for ready reference.

The purposes of communication-related developmental investigation will be to:

- understand the farmer's perspective, his perceived needs and desires, and his potential receptivity to the introduction of new technologies;
- detect hidden constraints--social, cultural, previous experience, etc.--that may influence his reaction to the proposed program;
- assess the variability among the farmers and rural families in the areas of project action with respect to such characteristics; and
- determine how to "package" the project's messages in forms most likely to be received positively by the farmers--what media the people prefer, what kinds of presentation (e.g., dramatization, spot announcements, dialogue, demonstrations), the vocabulary that should be used, etc.

Such understandings and knowledge about the target audience of farmers are critical to all subsequent steps in the communication support process. Consequently, one of the first communication-related activities undertaken will be to design and conduct development investigations.

The selection of methodologies will be influenced by resource constraints and the urgent need for information--results will be needed before startup of informational and educational programming. Conventional in-depth baseline surveys would be desirable, but are costly and time-consuming. Newer, faster techniques can be substituted that will provide the needed information and understanding at lower cost.

Methodologies and techniques appropriate for most projects can be adapted from those of other disciplines such as behavioral science and social marketing. Among the research instruments which may be applicable (discussed in Part Two, Section VB2), consider using:

- Reviews of existing data and information
- Focused group interviews
- In-depth interviews
- Observations through farm visits
- Central location (intercept) interviews
- Other small sample surveys

The design, conduct, analysis, and interpretation of developmental investigation studies will require a multi-disciplinary approach as the project's information needs will include elements of agricultural research and extension, communication, and social science. The needs for inputs from agricultural research, extension, and communication into developmental investigation for an agricultural technology transfer project are self-evident.

Social science inputs are equally critical. Farmer adoption of new/improved agricultural technologies has too often failed to live up to program expectations due to failure of the program to take into consideration non-technological factors such as the cultural and social characteristics of the target audiences and/or their economic and farming enterprise situations.

Radio programs may be ineffective because they offend the cultural sensitivities of the audience or do not use a vocabulary with which the people are familiar. Interpersonal contacts can be a deterrent to rather than a motivating force for technology transfer if the change agent has a patronizing attitude or cannot explain, in terms understandable to the farmers, the benefits to be gained from using a particular practice. Research results may be irrelevent because the researcher was not aware of the farmers' situations and characteristics--such as promotion of a black bean variety in an area in which only red beans are consumed.

The cost of not having a social science input into developmental investigation will almost certainly be a reduced program impact and, in extreme cases, near failure to achieve technology transfer objectives. It is a cost that an agricultural development project can ill afford.

The head of investigation/evaluation, who should be a qualified social scientist with training and experience in evaluation, will provide leadership to the multidisciplinary group who will collaborate in the design, conduct, analysis, and interpretation of developmental investigation studies.

C. Educational Programming

A strong, well-organized and highly functional educational programming system is the "heart" of an effective agricultural

communication support program. The multiple functions of the system will be directed toward:

- development of educational messages that are localized, practical and directed toward the interests, problems and potential opportunities of people in the rural areas who constitute the project's target audience/s;
- delivery of those messages in the proper sequence at the right time through appropriate media; and
- regular and systematic collection of comprehensive information from the people which is fed back into the system quickly to improve the program's quality and acceptability.

Educational programming system staff, typically organized into communication units, must be competent and highly motivated. Specialized skills and expertise will be required for some of the system's highly interrelated and interdependent functions. All staff must understand the entire educational programming process and how their particular assignments relate to those of others; it is essential that they function as a multidisciplinary team. An extraordinarily high level of coordination will be required to achieve and maintain this status.

Responsibility for internal coordination of staff and communication unit activities will rest with the communication director.

Communication unit facilities must be adequate for the jobs to be done. As discussed in Section II, Step Five, facility requirements can be reduced through appropriate use of outside private and public sector resources and facilities, careful selection of communication media and methodologies, and the choice of low cost techniques for production and distribution of educational materials.

Localization of programming will be essential, as discussed in Part Two, Section VB3. From the facilities standpoint, regional communication units may be desirable where the area of action is large and heterogeneous. However, the necessarily small regional units cannot be expected to replace the central communication unit that must provide leadership, support, technical supervision, coordination, and access to facilities and equipment that would be too expensive to replicate in each region.

The decision to operate through a single central communication unit or to establish regional units should take into consideration such factors as:

- Relative costs.

- Opportunities for increasing effectiveness of communication support vs. costs involved in establishing and operating both central and regional units.

- The possibility of obtaining needed localization of communication interventions through the existing national communication network.

- Effects on linkages with central and regional agencies.

- Division of functions and responsibilities between central and regional units.

- Anticipated problems for maintaining technical control of regional units.

- Possibilities for multi-sectoral uses of central and regional communication units.

As stressed repeatedly in the previous chapter, the communication unit can provide effective communication support only if it is fully linked into the total program. Key points of linkage and collaboration are identified below in relation to each of the principal educational programming system functions.

1. Programming, scheduling, reprogramming

Although the communication strategy will provide the overall plan for implementation of the communication support program, it will require continual modification and updating throughout implementation.

New opportunities will emerge--unanticipated research breakthroughs, newly developed markets, water becoming available for irrigation, installation of a new local radio station, organization of a strong cooperative or other farmer organization, and so on. Unanticipated constraints and problems will also be encountered--drought, flood, scarcity of needed inputs, drops in prices received by farmers for their produce, etc.

Flexibility must be maintained at all times to adjust the strategy as needed, sometimes on very short notice, to react appropriately to such factors.

Scheduling of program materials production and dissemination is critically important in an agricultural project. Agricultural production practices and, consequently, the use of improved agricultural technologies are time and location specific. Agricultural messages must be synchronized with the agricultural cycle. Scheduling of message sequences must be done far in advance of the time that farmers will have need of them, as a period ranging from several weeks to a few months will be

required from the time a decision is made by the project to seek transfer to farmers of a given technology until informational or educational materials are ready to disseminate. At the same time, flexibility cannot be sacrificed.

Development of a realistic schedule requires multidisciplinary involvement. A small permanent working group comprised of the director, technical liaison officer and head of investigation/evaluation from the communication component, and representatives from project management, research, extension, the private sector, and the farming community is recommended. The group, chaired by the communication unit technical liaison officer, should meet at least annually approximately two months before the start of the educational programming year to:

- Determine the major "themes" that will comprise the core content of the next year's educational programs in each region of project action. The calendar will be most manageable if the number of major themes is limited to no more than twenty-five. Include as sub-themes the specific technologies to be stressed.

- Prepare an "annual message calendar" for each region which indicates the periods during the year in which each major theme and sub-theme will be included in messages transmitted to the farmers through the various media programmed in the communication strategy. An annual message calendar developed and used in the Guatemala Basic Village Education Project is shown in Figure 8 to illustrate the concept. (This calendar would have been more useful if sub-themes had been included as suggested above.)

The individuals comprising the working group will change from region to region and with technical message content to be included. Depending upon the organizational framework of the project and its areas of action, it may be necessary to form a group for each region of action with some members serving on all to provide continuity and coordination of programming across regions.

The annual message calendar will guide all production and dissemination activities during the year, so all project personnel and those collaborating with the project should be provided copies.

The communication director, or regional communication unit coordinator, will be responsible for developing detailed program production, distribution, and dissemination schedules based on the annual message calendar, and for supervision and coordination to assure that all deadlines are met. The schedules should be prepared and distributed to all communication unit staff at least two months ahead of the dissemination date, and updated

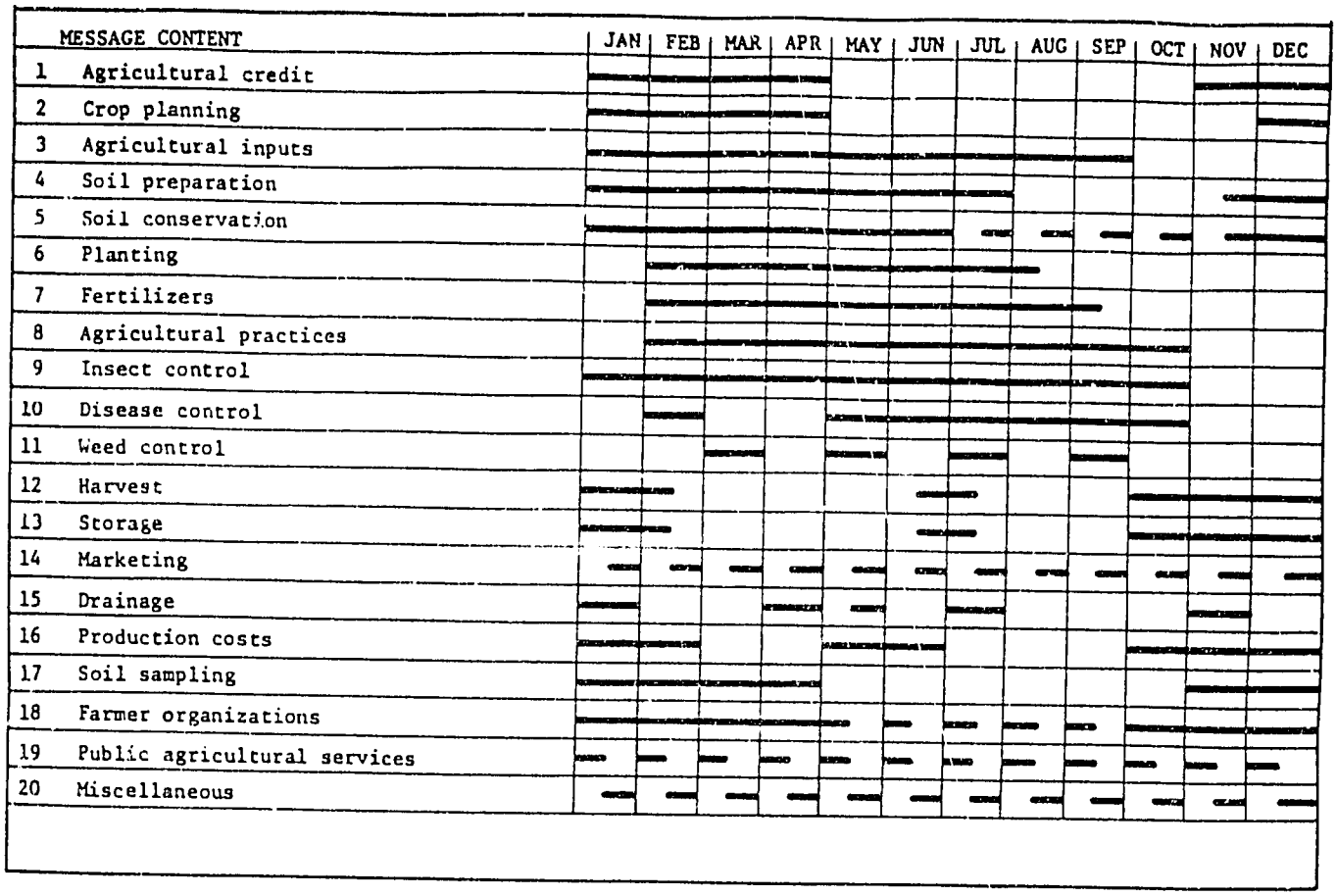

Figure 8. The BVE calendar of agricultural messages for 1976 programming in the Occidente region of Guatemala. (From AED 1978)

monthly. When there is need for deviating from the schedule to respond to emergency situations (such as a severe insect attack) or to take advantage of unanticipated opportunities, the schedule should be revised immediately, and all relevant staff informed.

Develop a uniform format for the schedules which include the following types of information for each communication intervention:

- Content theme and sub-themes.
- Specific behavioral objectives (the general behavioral objectives for the communication component will be a part of the communication strategy, but specific objectives should be established for each intervention). (Refer to Part Two Section VD for guidance).
- Media to be used, and type of presentation.

41

- Weekly job assignments, with deadlines for completion of each.
- Pretesting schedule.
- Date on which final production must be completed.
- Date on which distribution of educational materials must be completed, the method of distribution, and to whom they are to be delivered.
- Date on which materials are scheduled for use in the communication support program, such as recorded radio programs, audio/visual materials for staff training or use by extension agents in group meetings, or handouts at field days.

An effective management system is indispensable to the successful operation of the communication unit.

2. Message content

The communication component is a conduit rather than a generator of technical content of messages delivered to farmers (about agricultural technologies in our example).

From an operational perspective, the first step in the educational programming process is to secure message content information from its sources--researchers, extension specialists, agri-business firms, etc. Later, content must be checked back with the sources to ensure that the technical content of all program materials produced and disseminated is accurate, complete, current, and presented objectively.

Close communication must be maintained with information sources at all times to anticipate additions, modifications, or deletions in message content. In return, those information sources need regular, reliable, and comprehensive feedback from the project and the field concerning the information disseminated to the farmers.

Development of technical content must start in the earliest stages of project implementation, and continue so long as the communication support program exists (see Part Two, Section VC). Ideally, concentrated attention on a given set of technical contents should begin at least three months before that information will be used in communication interventions with farmers.

The communication unit technical liaison officer will have primary responsibility for this critically important function, working in close coordination and collaboration with his colleagues in the communication unit and staff of other project components,

and with researchers and key informants in the public and private agro-support sector.

3. Message preparation

The "raw" information received from researchers and other information sources must be recast into a form that will be understood, liked and accepted by the farmers. The way in which it is recast for a particular communication intervention will depend upon the intended audience, the behavioral objective/s, the channels through which it will be conveyed, and the program's understanding of the farmer's perspectives and "wants" as revealed through developmental investigation, formative evaluation and feedback.

Using behavioral objectives as an example, one set may be to make the farmer aware of new technologies, gain his interest, and motivate him to try them. A second set may involve step by step instruction in how to use the new technologies. A third set should be to help the farmer improve his ability to make appropriate choices among a variety of technological options. Each set has implications for the manner in which technical content is presented and through what media. The relative merits and significance of each in relation to programming and preparation of messages are discussed in Part Two, Section VD.

The communication unit technical liaison officer will have primary responsibility for "interpreting" technological information and recasting it into a form that can be used by production staff in writing their scripts, producing their programs, creating their audio/visual materials, and preparing targeted printed materials that are appropriate for the behavioral objective/s established for a given intervention with farmers.

This staff member must work in close association with the communication director and key production staff to assure that his/her work is consistent with the communication strategy, and is understood and used appropriately in the production of educational materials. He/she must also collaborate closely with investigation/evaluation staff and the feedback, networking and training coordinator to ensure that results of developmental investigation, formative evaluation and two-way feedback are fed back into his/her work on technical message content preparation.

An internal communication unit "production" committee headed by the communication director and comprised of those staff identified above can be an effective management vehicle for development of specific program strategies within the context of the overall communication strategy to guide message preparation.

4. Materials production

The communication strategy will call for the production of a

wide range of materials in several media with differing behavioral objectives targeted for different audiences (see Part Two, Section VE). To recap briefly, an illustrative list might include:

- <u>Media</u>

  Radio - spots, dramas, farm news

  Audio/visual - audio cassettes, flipcharts, slide sets, models, flannelgraphs

  Graphic/print - posters, flyers, leaflets, booklets, photonovels, reference manuals

- <u>Behavioral objectives</u>

  Create awareness
  Motivate
  Instruct
  Educate - help farmers improve their ability to make appropriate choices among technological options

- <u>Audiences</u>

  Farmers - traditional and progressive; low and medium resource
  Rural women
  Rural communities
  Rural youth
  Communication staff
  Extension workers
  Private and public agro-support sector institutions
  Administrators and policymakers
  The general public

Virtually all production will proceed under pressure to meet deadlines, which will require that multiple production jobs be in progress simultaneously--in-house and/or contracted out. The same staff member may be involved in several (e.g., the graphic artist may be responsible for doing the original artwork for a flipchart series to be used in a training event, for designing posters to announce a coming event, and for illustrating a leaflet to be distributed at group meetings in the region).

Much work will precede and feed into production--developmental investigation studies; development and preparation of message content; identification of major message themes and sub-themes and their organization into annual message calendars; and preparation of detailed production, distribution and delivery schedules. In the Guatemala Basic Village Education Project (reviewed in Part Three, Section III), it was estimated that at least forty

percent of the total cost of producing a 30-minute radio program had been incurred <u>before</u> it reached the production stage.

The keys to success in establishing and operating a production system capable of meeting deadlines with high quality materials include:

- Functional organization.
- Competent and motivated staff who fully understand the educational programming process and how their assignments relate to those of others, and who function effectively as a multidisciplinary team.
- Effective leadership, coordination and management provided by a competent, experienced, systematic, and creative communication director.
- Forward planning and scheduling, with flexibility to adjust to unanticipated or emergency situations and to incorporate findings from pretesting, feedback and formative evaluation into future production to improve its quality, understandability, and acceptability.

Each of the above is developed more fully in other sections of this Chapter. The issues of media, objectives and audiences are addressed in Part Two, Section V.

5. Message delivery

The communication strategy will identify the types of media to be used, and the general strategy for their application. Once the project moves into operation, more specific decisions must be made concerning the particular media to be used for each message series and how they will be combined to obtain mutual reinforcement. That is, a "channel strategy" is needed for each message series that the program proposes to disseminate.

The characteristics of media most likely to be utilized in the communication support program, and how they can be combined effectively for a given channel strategy are presented in Part Two, Section VE. Also included in that section is a hypothetical example of how a channel strategy might be developed and translated into action. To summarize briefly, use the following criteria to help identify the combination of media to be included in the channel strategy for a given series of messages:

- <u>How many people need to be reached and how quickly</u>?

  The larger the number of people to be reached, the greater the importance of including mass media in the channel strategy.

45

- How complex is the information to be delivered?

  The more complex the message, the more likely it is that interpersonal contact and repetition through several media will be required.

- How different is the information from existing knowledge and practices?

  The more novel the information, the greater the need for interpersonal support.

- How credible to the intended audience is a particular channel as a source of information for the specific topic?

  The higher the credibility, the more important the channel.

- How much will it cost to deliver the information to a significantly large portion of the audience through a given channel?

  The higher the cost, the less likely that the program can afford to use it on a sustained basis, other factors being equal. In some situations, there may be no alternative to using a relatively high cost channel in order to achieve the desired objective.

To reiterate what has been stated earlier, the importance of delivery that is timely in relation to both farmers' needs and other project activities cannot be overemphasized. Although leadership in development of channel strategies will be the responsibility of the communication unit production committee recommended earlier, close coordination with other project components will also be essential.

6. Feedback and feedforward

Both terms are used here to emphasize the need to collect, distribute, and act upon feedback from the farmers and communities in the project's area of operation, and for researchers to obtain information about the performance of the technologies they have recommended and problems which will require further research. Private and public agrosupport institutions' needs for information regarding anticipated demand for their goods and services also fall into the latter category. Both types of need are usually included under the heading of feedback for the sake of convenience, a convention that is followed below.

Key words in criteria for developing and using feedback include comprehensive, frequent, systematic, reliable, promptly distributed,

and prompt followup action. Any feedback system that meets these criteria will satisfy the needs of the communication component and the project as a whole.

The types of information flow included under the general heading of feedback are identified in Part Two, Section IVF; and feedback systems--including an illustrative division of feedback responsibilities among the communication component, extension, research, and other individuals and institutions concerned--are discussed in Part Two, Section VB2. Expansion of the feedback system into a more comprehensive communication network is covered in Part Two, Section VF.

Whatever type of feedback system is developed, it must be dynamic. It should expand over time to add more sources, collectors and users of information; the quality and extent of information flowing through the system should increase; and transmission and distribution procedures should be refined and improved continually as operational experience is gained. The communication component feedback coordinator should have primary responsibility, under the communication director, for providing leadership in development of the feedback system and coordinating its functions.

D. Pretesting and Formative Evaluation

Developmental investigation and pretesting/formative evaluation are closely related, some of the same methodologies are used, and there is some overlap among them. For the sake of simplicity, it is reasonably accurate to state that pretesting and formative evaluation begin where developmental investigation stops. Feedback, pretesting and formative evaluation are also closely related. Each meets a specific project need, however, as will be pointed out below.

1. Pretesting

Pretesting is a form of "advance" feedback, obtained before final production of materials to be disseminated to their intended audiences. The results of developmental investigations will provide understanding of the farmers and guidance concerning the types, formats, and styles of presentation that are likely to gain ready acceptance. They do not, however, ensure that the staff's interpretation of those results will result in materials that are, in fact, understood and the messages accepted. Hence, it is important that new program materials be pretested and revised as needed before proceeding to final production and use in the educational program.

The volume and diversity of materials produced for the communication support program will be too great to permit pretesting every

radio program, graphic presentation, booklet, etc. It is critical, however, that prototypical materials in each media be pretested regularly to ensure that they are accurate, comprehensible, attractive, and culturally appropriate. To illustrate, one Guatemala Basic Village Education Project flipchart series was rejected by the farmers with which it was used. The reason: farmers present at the meeting said that the hoe handle was shorter than the ones they use, so the information must have been meant for farmers in some other region.

Appropriate techniques and procedures for pretesting program materials, some of which are those also used for developmental investigation studies, are identified and discussed in Part Two, Section VB2. The design and conduct of pretests will be the responsibility of the investigation/evaluation section. To gain first hand experience and understanding of the intended audience's reactions to the materials for which they are responsible, other relevant production staff should also be involved.

2. Formative Evaluation

Formative evaluation will carry the testing process one step further. It will provide information about whether the messages disseminated to farmers have been timely and well-received, indicate if and how the various communication and other project elements are working, and suggest (together with information received through the feedback system) needed in-course changes or adjustments.

Formative evaluation studies differ from developmental investigation in that they follow the project in progress. Formative evaluation results will need to be correlated with those of developmental investigation and pretesting. They will differ from feedback in that formative evaluation studies will be designed and conducted to obtain quantifiable data susceptible to analysis, whereas feedback will be qualitative in nature and more comprehensive in content (see Part Two, Section VB2).

The design, conduct, and analysis of results of formative evaluation studies will be the direct responsibility of the investigation/evaluation section. To be relevant and timely, and to ensure that resources are allocated appropriately for these activities, both pretesting and formative evaluation should be planned into the annual communication support workplan; the investigation/evaluation head should be a member of the planning group.

E. Staff Training and Support

It is assumed that technical content training will be provided through other project components. Training activities discussed

below are therefore limited to those directly related to communication.

Two areas of training will be critical: 1) training to meet internal needs of the communication component; and 2) communication-related training of staff of other project components and collaborating public and private sector institutions.

1. Internal training needs

Training needs will vary greatly among staff assigned to the communication component. Different positions will require different types and levels of expertise and skills. The backgrounds, experience and competence levels of staff assigned to the project will vary widely. It is essential that training programs be tailored to meet the specific needs of the communication component and the people who staff it.

Modern training techniques and principles (adapted in part from behavioral science), discussed in Part Two, Section VG, offer opportunities to increase training effectiveness significantly.

The types of training typically provided in a comprehensive training program to meet initial and continuing training needs include:

- Formal and/or specialized training

  Provided outside the project, either abroad or in appropriate institutions in the host country. Formal study programs, degree or non-degree, may be most appropriate for senior staff who will comprise the core group of professionals expected to provide long term leadership to the communication support program. They will need broad understanding of communication strategies, management of communication support programs, communication-related developmental investigation and evaluation.

  Specialized training outside the project may be required for staff who already possess the basic expertise or skills required, but who lack specific training and experience in new techniques and methodologies that will be used in the project.

- Pre-service training

  Creating familiarity with the communication media, techniques and methodologies used in the program; and upgrading the skills required for their particular assignments. The timing, length, and content will depend upon the background, training and experience

of participants, and the complexity of the planned communication support program. All staff can be brought together for some phases, but should be divided into smaller groups for specific job training.

- In-service training

  Scheduled regularly. This training should focus on new areas of activity and on areas in which staff competence needs strengthening, revealed by performance on the job.

- Seminars and workshops

  Appropriate for program administrators, coordinators, senior staff of collaborating institutions, etc., upon whom the communication program must depend for active support. Well-organized, substantive workshops are also appropriate for updating communication staff on project progress and plans. As staff gain experience and competence over time, seminars and workshops may partially replace scheduled in-service training courses.

- On-the-job training

  The most effective single training mechanism for many purposes, on-the-job training may be provided either within the project or through arrangements with an outside organization or firm.

- Supervision and backstopping

  Both communication skills and technical knowledge can be reinforced during regular supervisory activities and through technical backstopping to help staff deal with problems. The supervisor should periodically sit with the staff member to assess his/her strengths and deficiencies, and then work with him/her to develop a plan for improvement.

All of these training formats have their utility and place in training communication-related staff; it is not a case of selecting from among them. It is assumed that pre- and in-service training will be organized by the communication component, with outside expertise enlisted as needed to supplement communication staff as instructors. Supervision and backstopping will be the responsibility of senior communication component staff as implied in the illustrative organizational structure in Figure 6.

The communication unit training coordinator will be directly responsible for organizing communication-related training events in accordance with the annual work plan and for coordinating

such training with other project elements. In discharging these responsibilities, he/she will work under the general supervision of the communication director and in collaboration with communication staff and others as appropriate. He/she will also serve as the principal "trainer of trainers" in upgrading the effectiveness of training through application of modern training techniques as discussed in Part Two, Section VG.

2. Communication-related training for other staff

Extension workers (and staff of other public and private institutions utilized as diffusion agents), researchers, subject matter specialists, and other staff involved in the various project activities will also require communication-related training to:

- Enhance their basic communication skills.
- Introduce them to the communication media and methodologies to be used in the communication support program, imparting sufficient understanding to gain their support and enable them to take advantage of the communication support program in carrying out their own responsibilities.
- Prepare extension workers and other diffusion agents to participate fully and effectively in the communication support program.

The training vehicles used with these groups will be similar to those suggested above for communication staff, with the difference that communication-related training for other staff will often--if not usually--be incorporated into ongoing training events organized by their own organizations.

Responsibilities of the communication unit training coordinator for non-communication staff training will be similar to those for communication staff training. Coordination and collaboration with the institutions and organizations involved will be even more critical, however.

F. Interinstitutional Coordination/Networking

The need for interinstitutional coordination and collaboration has been emphasized at every stage of planning and implementation of communication support. This need is addressed specifically in Communication Strategy Point 8 (Section II, Step Five) which is a plan for establishing and managing a communication network. The concept is developed in greater detail in Part Two, Sections IIIE, IVG and VF. Use the network to its maximum.

In addition to the ongoing coordination achieved through networking

and normal contacts and interaction, the coordination process can be facilitated greatly through:

- A series of pre-implementation meetings and seminars involving all potential participants in the communication network (including ministry-level administrators and policymakers) to inform them of the project's objectives, target audience/s, areas of action, organization, methodologies, and anticipated results. The purpose of these events will be to gain understanding of and support for the project.

- Annual followup meetings/seminars to keep all informed of progress, accomplishments and major problems.

Major roles of communication component staff in such events will be as facilitators and producers of materials for presentations and handouts. The communication unit networking coordinator will have primary responsibility for assisting the project manager and the communication director in organizing these events and determining the types of materials needed that will then be produced by the communication unit production staff.

G. Summing Up

There can be no "recipe" to follow in developing and implementing a viable communication strategy. No "model" can be offered that is applicable to all projects. Nevertheless, much valuable experience has been gained in recent years that can be synthesized into practical guidelines for planning and implementing effective communication support into agricultural development projects. The guidelines offered herein for planning and implementing effective communication support are derived from that body of experience.

IV. Monitoring Progress

It can never be assumed that the program is functioning as planned. Ongoing monitoring will be required to assure that the communication support program remains on target. Effective monitoring will reveal the need, and provide the basis, for making in-course corrections to maintain and increase impact.

Monitor staff performance directly through supervision as discussed in Section IIIE above. In addition to the informal staff performance assessments made through ongoing supervisor/staff interaction, in-depth evaluations of all staff should be made annually. The objectives will be to identify areas in which each individual needs strengthening, and to develop a plan for his/her improvement in those areas.

An indirect assessment of staff performance will result from the monitoring of communication support program outputs and effectiveness as discussed below. It is frequently possible to relate successes and problems identified through pretesting, formative evaluation and feedback directly back to an individual staff member or group of staff.

Monitoring communication support program performance is equally important. Communication support program outputs should be measured against what has been planned in the communication strategy and scheduled as discussed in Section IIIC above. Such comparisons provide one dimension of monitoring, the efficiency of the communication component management system in producing and delivering "x" numbers of educational materials in "y" media in a given period of time. Of much greater significance, however, is the effect that these outputs have had on the intended audiences.

The principal "tools" for measuring communication support program effect will be feedback and formative (operational) evaluation, coupled with informal observations reported by project staff. It is critically important that such information be measured against what was anticipated in project and communication support program objectives and projected in expected project outcomes.

Training, networking, and interinstitutional coordination are other elements of the communication support program that require close monitoring to maintain and improve performance and effectiveness. In the case of training, for example, each training event should be evaluated at the completion of the event in relation to its goals and, later, in relation to its impact on staff performance.

Program monitoring, in-course corrections, and reprogramming are continuing activities throughout the life of the project.

An annual in-depth assessment followed immediately by action to strengthen weak areas and reprogram communication support strategies and activities is also vital.

The annual assessment should precede preparation of the detailed workplan for the coming year. Designate a small interinstitutional group for this purpose which represents all project components, including communication, and major collaborating institutions. As in the case of planning, the group should be interdisciplinary and include a social scientist. Also include an outside expert not associated with the project, if possible.

The above measures are designed primarily for in-progress monitoring and improvement of communication support program performance and effectiveness. The project as a whole will undoubtedly also be subjected to some form of impact (result) evaluation. Although discussion of impact evaluation is beyond the scope of this paper, it should be pointed out that initial and interim impact evaluation results can also provide invaluable guidance in keeping the project on target.

The principles and processes underlying the guidelines presented in this volume are discussed in Part Two, Agricultural Communication in the Context of Agricultural Development Programs. Four extension models are discussed and six projects with strong communication components are reviewed in Part Three, Extension and Communication Models. Each of these parts is available in a separate volume.

INCORPORATING COMMUNICATION STRATEGIES
into
AGRICULTURAL DEVELOPMENT PROGRAMS

PART TWO

AGRICULTURAL COMMUNICATION IN THE CONTEXT OF AGRICULTURAL DEVELOPMENT PROGRAMS

By

Howard E. Ray, PhD
Vice President and Director
Agricultural Sciences and Technology
Academy for Educational Development

OCTOBER 1985

Prepared under Contracts No. AID/ta-C-1473, and No. AID/DPE-1109-C-00-4081-00, Communication Support Project, by the Academy for Educational Development and the Institute for International Research, funded by the Office of Education of the Bureau for Science and Technology of the United States Agency for International Development.

Foreword

Communication, the transfer of ideas and knowledge, is vital to human association. We all use communication skills every day as we go about our daily business. At every level--personal, professional, business, community, national, international--the degree of success enjoyed is dependent in large part upon the ability to communicate effectively.

In agriculture, some of the problems encountered in transferring improved agricultural technologies from research to the farmer in the developing world offer a prime example of the consequences of not communicating effectively. Obviously, communication alone cannot solve all of the problems associated with technology or information transfer. When effective communication support is incorporated into projects that have the other ingredients required for success, however, it has high potential for increasing impact.

Today, the planner has multiple resources upon which to draw in designing communication support programs. These include not only newly developed communication technologies and experience gained in the use of communication in agriculture, but also communication experience from other sectors such as health and education, and important concepts and procedures from other disciplines such as behavioral science and social marketing.

The objective of this study has been to synthesize such technologies, experience, and concepts adapted from other disciplines into practical guidelines for designing and implementing appropriate, audience-oriented communication support programs in agricultural development projects.

The guidelines are presented in Part One of this paper, and the conceptual framework on which they are based is developed in Part Two. Reviews of six projects with strong communication components (two from agriculture and one each from literacy/basic education, health and integrated rural development) are included in Part Three.

Acknowledgments

This study was made possible by funding provided through the Small Activities Project of the Bureau for Science and Technology of the United States Agency for International Development under the guidance of Dr. Nyle C. Brady, Senior Assistant Administrator. The author gratefully acknowledges and expresses his sincere appreciation for this support.

The excellent guidance and suggestions received from a committee comprised of representatives from the Education, Agriculture and Rural Development Offices of the Science and Technology Bureau and from the Latin America and Caribbean Bureau are gratefully acknowledged. The long hours that they spent in reviewing early drafts of the paper and in meeting with the author helped greatly to sharpen the focus and improve the quality of the paper, and were very sincerely appreciated.

Although the list of AID staff who contributed to the paper is too long to enumerate, the author wishes to give particular thanks to Anthony Meyer who was always available for consultation and who provided invaluable guidance and suggestions throughout the study, to John Eriksson for his early encouragement and continued support of the study, and to Kenneth Swanberg, Philip Church, Ralph Cummings, Jr., Clifford Block and others who contributed so generously of their time and reference libraries.

The author is indebted to his colleagues at the Academy for Educational Development for their support and contributions. Particular thanks are due to Bill Smith, who contributed substantively to the manuscript and reviewed each of the several drafts, to Judy Brace who assisted in locating references and also reviewed the drafts, and to Bette Booth and Mark Rasmuson who contributed materials that were later incorporated into the paper. The editing assistance of Minerva Neiditz is also acknowledged.

Finally, the author expresses his deepest appreciation to his wife for the endless hours she spent researching, proofreading, preparing figures, checking and rechecking the manuscript.

To all of these, and the numerous others who contributed to the study and paper, the author expresses his sincerest appreciation.

October 28, 1985

H.E.R.

EXECUTIVE SUMMARY

Projects such as Basic Village Education in Guatemala and Masagana 99 in the Philippines have demonstrated that effective communication support can increase the impact of agricultural development programs. It is encouraging that interest in such communication support is growing, and that viable communication components are being incorporated increasingly into agricultural projects around the world.

New approaches will be required to improve the performance of technology transfer and other agricultural development projects. In addition to taking advantage of the body of experience gained from successful agricultural projects and newly developed communication technologies and methodologies, concepts and procedures from behavioral science and social marketing need to be adapted and used. The farming systems concept will also have relevance. Effective communication support must be a key element.

No comprehensive communication model exists that applies to all projects and programs. Nevertheless, current experience is sufficient to permit synthesis into practical guidelines for incorporating effective communication support into agricultural development projects.

A set of guidelines for planning, implementing and monitoring appropriate communication support is presented in Part One. First, eight critical planning steps are identified and discussed: 1) determining and testing relevant assumptions concerning the project as a whole; 2) establishing an institutional base and "home" for the communication component; 3) identifying information needs; 4) determining existing communication resources; 5) developing a ten-point communication strategy; 6) estimating communication-related resource needs; 7) integrating the communication strategy into the total project plan; and 8) interpreting what is implied by a "final" communication strategy.

Communication support implementation guidelines include: 1) communication component organization, staffing and management; 2) developmental investigation; 3) educational programming (including feedback); 4) pretesting and formative evaluation; 5) staff training and support; and 6) interinstitutional coordination and networking. Guidelines for monitoring progress are presented in the final chapter of Part One.

The paper repeatedly emphasizes that the communication component is a supporting element of the agricultural project that can be effective only to the extent that it functions as an integral part of the total program. Critical linkage points are identified at each stage in the planning and implementation processes, and the potentially important roles of the private sector and other public section institutions are highlighted.

The concepts, principles and processes underlying the guidelines are presented in Part Two, "Agricultural communication in the context of agricultural development programs." After establishing the rationale for incorporating effective communication support into agricultural projects and restating the communication problem to be addressed, communication is discussed in relation to other program components--including the non-communication requirements for successful communication support programs. Issues related to communication functions and strategies are then addressed, with emphasis on:

- The need for the communication support program to have a farmer orientation which takes into consideration the characteristics of (and variability in) the project's target population/s.
- Application of behavioral science and social marketing techniques grafted onto the agricultural framework for communication-related investigations, pretesting and formative evaluation.
- Characteristics of major broadcast, interpersonal, and graphic/print media within the context of media networking and media "channel strategies."
- Techniques for improving staff training, adapted in part from other disciplines such as behavioral science.

Part Two closes with a summary of characteristics of successful communication strategies, and a limited discussion on the costs, benefits and cost effectiveness of communication support.

Issues related to the need for, relevance and performance of extension in the LDCs since World War II are addressed briefly in Part Three, followed by discussion of four conceptual extension models--including a suggested "hybrid" extension model to meet today's needs. The urgent need to involve the private sector productively and effectively in technology transfer programs is again stressed. Six projects from Latin America, Africa and Asia that have had strong communication components are then reviewed. Attention is directed specifically to operational systems and processes used in these projects to enable planners to take maximum advantage of such experiences in designing effective communication support into new projects.

The three parts of the paper are bound separately and cross-referenced extensively for convenience in use. Taken as a whole, the three parts provide: a conceptual framework for incorporating appropriate communication strategies into agricultural development projects; guidelines for planning, implementing and monitoring communication strategies and support programs; and examples of projects on whose experiences planners can draw in designing appropriate communication support into existing or new projects.

PART TWO

AGRICULTURAL COMMUNICATION IN THE CONTEXT OF AGRICULTURAL DEVELOPMENT PROGRAMS

Table of Contents

		Page
	Foreword and Acknowledgments	
	EXECUTIVE SUMMARY	
I.	**The Rationale**	II- 3
II.	**The Problem**	II- 5
III.	**Communication in Relation to Other Program Components**	II- 7
	A. The farmers	II- 7
	B. Research	II- 8
	C. Extension	II- 9
	D. Agricultural infrastructure	II-10
	E. Coordination, interaction, integration	II-11
IV.	**Communication and Communicator Functions**	II-13
	A. Developmental investigation	II-13
	B. Planning and strategy development	II-13
	C. Production of educational materials	II-14
	D. Information delivery	II-14
	E. Evaluation	II-14
	F. Feedback	II-15
	G. Coordination	II-16
	H. Staff training and support	II-16
	I. Summary of functions	II-17
V.	**Communication Strategies**	II-19
	A. Hybrids of a different kind	II-20
	B. Farmer orientation	II-20
	C. Message content for targeted change	II-29
	D. Behavioral objectives	II-31
	E. Media network	II-33
	F. Communication network	II-46
	G. Staff training and support	II-47
	H. Monitoring progress	II-49
	I. Summing up	II-50
VI.	**Characteristics of Successful Communication Strategies**	II-51
VII.	**Costs, Benefits and Cost Effectiveness**	II-55
VIII.	**Relevant References**	II-61

Figure

1. Agricultural technology development and transfer process. II-4

AVAILABLE IN SEPARATE VOLUMES

PART ONE

GUIDELINES FOR INCORPORATING COMMUNICATION STRATEGIES INTO AGRICULTURAL DEVELOPMENT PROGRAMS

I. The Communication Component

II. Planning Effective Communication Support

III. Implementing Effective Communication Support

IV. Monitoring Progress

PART THREE

EXTENSION AND COMMUNICATION MODELS

I. The Case for Extension

II. Conceptual models

III. Basic Village Education in Guatemala

IV. Masagana 99 in The Philippines

V. Mass Media for Agricultural Extension in Malawi

VI. Distance Learning in Lesotho

VII. Communication System for Rural Development in Mexico

VIII. Mass Media and Health Practices in Latin America and Africa

IX. Summary of Lessons Learned about Communication Support

PART TWO

AGRICULTURAL COMMUNICATION IN THE CONTEXT OF AGRICULTURAL DEVELOPMENT PROGRAMS

Communication is important to agriculture. Every major agricultural program in this country--the U.S. Department of Agriculture and Land Grant Universities as examples--have well-established information services to facilitate communication with their clientele. In Extension, the value of crop demonstrations for convincing farmers of the benefits from improved practices was proved well before passage of the Smith-Lever Act which created the Cooperative Extension Service. Research on communication in agriculture has been underway for many years. The planning and use of communication in agricultural programs is by no means new.

In spite of this rich history of research and use of agricultural communication in the United States, serious difficulties have been experienced in translating that knowledge and experience successfully into agricultural development projects and programs in the Third World. Lack of effective communication support has been a major constraint in many programs. Extension projects which seek to transfer improved agricultural technologies from research plots to the farmers--particularly the small farmers who constitute the vast majority of the farming population in most LDCs--offer a prime example.

Although the LDCs have invested heavily in Extension as a technology diffusion vehicle, its coverage is still limited; and its effectiveness in accelerating technology transfer has been disappointing. New and innovative approaches will be required to alleviate the technology transfer constraint.

A farming systems approach could have important implications for improving technology development and transfer. Effective communication support must also be a key element--successful projects with strong communication components properly utilized have demonstrated that communication support <u>can</u> increase the impact of agricultural development programs.

The use of agricultural communication support in the Third World is still more of an art than a science. No comprehensive communication model has yet been developed that is applicable to all programs and projects. Nevertheless, current experience and understandings are sufficient to provide guidance in planning and implementing communication support programs that can significantly increase total project impact.

The challenge in planning and implementing communication strategies

that contribute most fully to achievement of agricultural project objectives lies in determining how to take full advantage of:

- the body of experience gained and lessons learned from past projects about how to use communication support effectively;

- newly developed communication technologies and methodologies; and

- appropriate concepts and procedures from other disciplines such as behavioral science, social marketing and instructional design that can be adapted and used effectively in an agricultural context.

This volume of the paper, Part Two, provides the conceptual base for the Guidelines presented in Part One, available in a separate volume. It first seeks to establish the rationale for incorporating effective communication support into agricultural projects, to state the communication problem to be addressed, and to relate communication support to other project components (including non-communication requirements for a successful communication support program).

Communication and communicator functions are then discussed before proceeding to presentation and discussion of communication strategy concepts and procedures. The volume concludes with a summary of characteristics of successful communication strategies, extracted in large part from experience gained in the projects reviewed in Part Three (also available in a separate volume), and a limited discussion on the cost effectiveness of communication support. A list of communication-related literature citations, including those referenced in the paper, is attached for the reader who wishes to study the subject in greater depth.

As in the case of Part One, this Part focuses on one major type of development program (agricultural technology transfer) to add concreteness to the concepts and procedures presented and discussed.

I. The Rationale

The rationale for including a communication component in agricultural projects is best established through illustration. The agricultural technology development and transfer process, essential to agricultural development, provides an excellent example for this purpose.

The technology development and transfer process encompasses technology generation, testing, adaptation, diffusion, and adoption. Conventionally, generation is the function associated with research and diffusion the function associated with extension. The communication needs are obvious.

Both research and extension should be involved in the testing and adaptation required to assess local adaptability, technical and economic feasibility, and social acceptance. An additional element, the farmers, must be added at this stage, since they will ultimately determine the degree to which new/improved technologies are transferred. Effective communication and interaction among the researcher, extensionist and farmer become increasingly important as the testing and adaptation phase progresses.

Adoption, the actual transfer of a technology to widespread application on farms, ultimately depends upon the individual decisions of farmers in the area. Their decisions will be based on their knowledge, understanding and acceptance of:

- The dependability of the technology when they start using it on their farms. Will they realize the same results and benefits every year on their farms that they have observed in the field trials, or that they have heard about?

- The economic gains to be realized from use of the new technology. They will not adopt it unless there is an economic incentive--secure and adequate profitability.

- The practicality of using the new technology under their conditions of limited resources and land quality. Does its adoption require power, land type, labor, purchased inputs, markets, or credit that are not available to them? If so, can these constraints be overcome, and how?

- Their initial success, and that of their neighbors, in trying the new technology. If it has been poor due to using the new technology improperly, how can this be determined? And how can the farmers be convinced that the failure was due to improper application rather

than to the technology itself?

Effective two-way communication is essential for addressing each of the above factors on which farmers will base their decisions to accept or reject a new technology. The basic communication functions are to facilitate the multidirectional flow of information among all involved (research, extension, agro-support sector, farmers), and to minimize the likelihood of information breakdowns anywhere in the continuum. The principal communication component intervention points into the total system are illustrated in Figure 1 below.

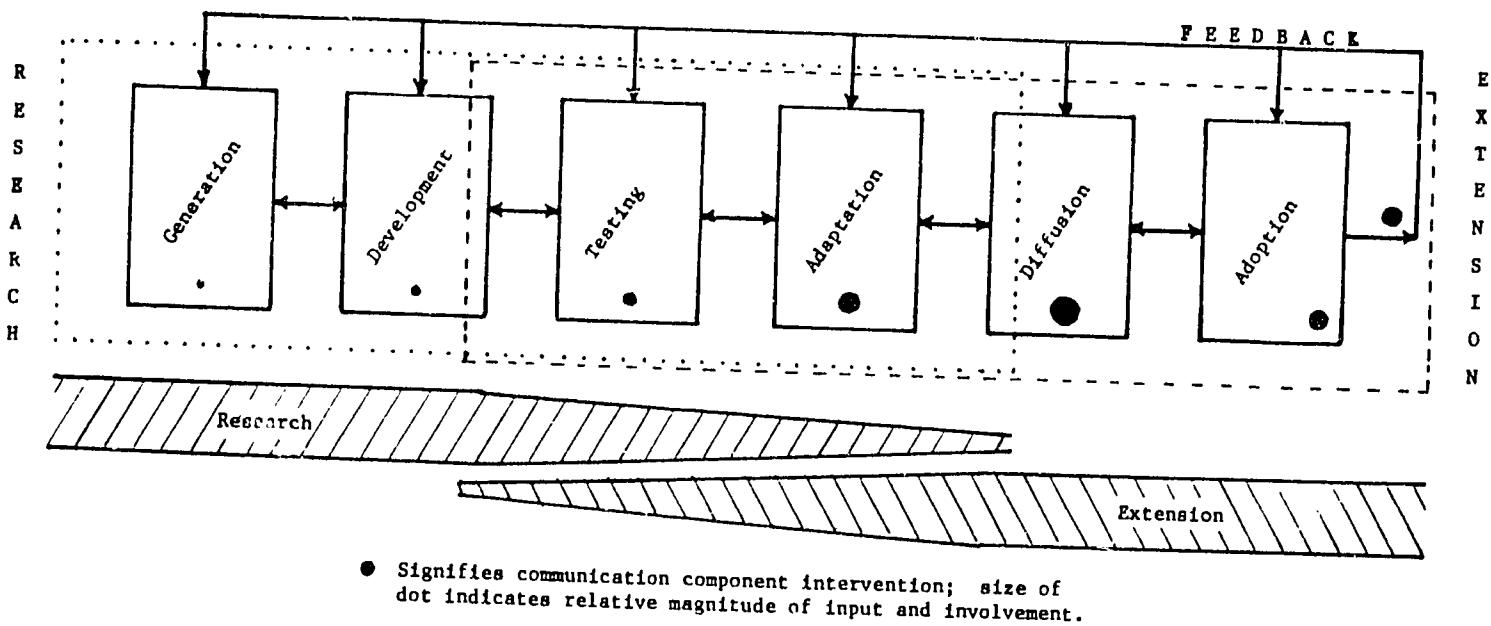

Figure 1. Agricultural technology development and transfer process. (Adapted from Ray 1984)

Consistent with the example used in this chapter, the remainder of the paper focuses on communication strategies for projects and programs whose objectives include the transfer of improved technologies to farmers. Greatest attention is directed to the last two steps in the technology development and technology process: diffusion and adoption. Communication needs and functions are also addressed in relation to the entire process. Insofar as appropriate, the term extension is used in both the generic and specific senses to denote technology transfer programs.

16

II. The Problem

Extension coverage of farm families is still limited in most LDCs; the quality of Third World extension is questioned; returns on investments in extension programs are still not clearly established (Refer to Part Three, Section I, for a more detailed treatment of these issues); and the capability of developing country governments to sustain their extension services at even present levels without a continuing infusion of external assistance is increasingly doubtful.

Orivel (1983) concludes that "the outcome of extension services has been a source of much disillusionment," and Johnson and Clark (1982) state ". . .that conventional model has not worked at all well in developing countries." Although there have been some notable exceptions, the conclusion from a Honduran study (Ray 1984) that no viable communication subsystem exists in that country today represents the more common situation. Over-reliance on traditional audio-visual aids and failure to integrate the use of radio and other appropriate media into a coordinated strategy in extension still prevail in many developing countries.

Continued reliance on traditional extension methods and programs is not likely to bring about the increases in agricultural productivity and income required to sustain agricultural development in the Third World.

The communication problem to be addressed in improving technology development and transfer programs in agriculture transcends the need to create technology diffusion institutions *per se* (extension services are already in place) or to introduce the use of communication into the system (information units commonly exist, audiovisual aids and printed materials are being produced and used, and so on). Rather, the problem is that application of communication skills, media and methodologies is too often ad hoc and fragmented, with no operative strategy for their integrated and mutually reinforcing use in effective support of the program.

The communication challenge will be to develop viable communication support programs as an integral part of strategies to reorient, remold and reinforce existing extension systems to increase their coverage, effectiveness and cost effectiveness.

Concepts, processes and procedures for addressing this problem and meeting this challenge are developed in subsequent sections of this volume. Guidelines for translating them into plans and action are offered in Part One.

67

III. Communication in Relation to Other Program Components

In the context of this paper, the term communication refers to the transfer of ideas or knowledge in ways that enable the recipient to understand, react to, and act upon the information received. Communication technologies, techniques and skills derive their value from the ways in which they are used to transfer information to, from, and among those who have need of it.

The effectiveness of communication support will depend upon the extent to which it fulfills the second part of our definition of communication--the key words are understand, react to, and act upon. In technology transfer programs, the example being used for this discussion, effective communication with and among at least four major groups is essential: the farmers, research institutions, extension institutions, and agricultural infrastructure institutions (public and private).

Since communication is by definition restricted to transfer of information, its effectiveness will be facilitated or constrained by the capabilities and/or constraints related to each of these four groups.

A. The Farmers

Third World farmers with small holdings can be generally characterized as having severe resource constraints, being reluctant to assume risk, using minimal cash inputs, and existing at or near the subsistence level. Even within a local setting, however, great variability is typically found among farmers with respect to such characteristics as:

- Socioeconomic and cultural factors
- Perceptions of risk
- Resource limitations
- Attitudes toward change
- Management and husbandry skills
- Degree of modernization of their agricultural enterprises
- Readiness to accept new ideas and products
- Sources of information which they consider to be credible
- Quality of lands which they farm
- Tenurial status

Although these farmers have limited land and other resources, they typically engage in a number of different enterprises--such as production of several crops, raising a few animals and, perhaps, growing some fruit trees and a garden.

Effective communication requires understanding of such characteristics and variability, and use of strategies that result in technological information being transferred in ways that will enable all to understand, react to, and act upon the information received.

From the standpoint of the farmer, the technical feasibility or biological potential of a new technology is not necessarily sufficient to convince him to adopt it. He will be most apt to try it if he feels that he has been involved in testing and adapting it for use in his area--that his observations and judgments matter, and are taken into consideration by researchers and extensionists in deciding whether to recommend the technology and under what conditions. He will be most interested in whether a new technology is dependable, economically beneficial, practical, and low risk. He will need to decide whether he has sufficient management and husbandry skills to use it successfully. And he will want to know what the consequences will be if he does not adopt it.

The farmer will become a facilitator of technology transfer if the communication support program is oriented toward <u>his</u> perspective and situation, and if he is not unduly constrained by factors that are beyond his control.

B. Research

The first and foremost requirement for achieving technology transfer is a continuing supply of appropriate, well adapted technologies that will increase farmers' production and profits. It obviously follows that this is a requirement for successful communication support to a technology transfer project.

Estimates of the availability of such technologies have at times been overly optimistic as pointed out in an AID Issues Paper (1983). As another example, a ten-point program used by India in the late 1950s (Ministry of Agriculture 1959) to cope with its urgent need to increase food production was based on the assumption that a significant reservoir of improved technology was available for increasing agricultural production. The program of crop demonstrations initiated early in the program soon documented the need for new fertilizer-responsive varieties with high yield potential. Ray (1974) concluded that an early contribution of the program was to provide concrete evidence that lack of appropriate profit-making technology was a major constraint to increasing food production in that country.

The major technological breakthroughs that typically occur only occasionally are not sufficient to maintain the momentum of a technology transfer program. Nor are they sufficient to justify

the investment required to develop and maintain an extension program equipped with the communication facilities and staff to make it fully effective. Continuing problem-oriented research is essential--from which a stream of less spectacular, but solid, improved technologies emerge.

To be relevant, such research must be oriented toward the factors which influence farmers' decisions to adopt or reject a new or improved technology (identified in the foregoing section), as well as toward determining its technological feasibility and biological potential. Consideration must also be given to determining what combinations of inputs, practices, and enterprises will be most beneficial to farmers under their circumstances.

As is discussed later, the communication support component of a technology transfer project has an important role to play in helping to identify problems for which such research is needed, and in helping to close the gap between the best and poorer farmers through researching their behavioral characteristics that contribute to the differences.

A viable and relevant agricultural research system is needed for meeting the "available technology" requirement. The research system must have sufficient resources, stability and leadership to permit developing and sustaining research programs directed toward both short and long range problems and potentials of the country's agriculture. Also, in addition to the collaborative research, sharing of germplasm, etc., which already exist among national, regional and international research institutions, linking such institutions through a communication network that facilitates the regular flow of information among all will have a multiplier effect on technology transfer.

C. Extension

The case for extension is presented in Part Three, Section I. Suffice it to say at this point that a viable technology diffusion vehicle such as extension is necessary for achieving sustained transfer of agricultural technology to farmers. Major technological breakthroughs, such as the dwarf wheats and IR8 rice, may be taken up by farmers in the absence of extension. The less spectacular improvements developed year by year are apt to remain in research reports, however, unless there is a dynamic system for disseminating them to the farmer.

Such a system is important for successful adoption of even the major breakthrough technologies. Introduction of the dwarf wheats and IR8 rice into India provide examples. When the dwarf wheats were introduced into the Indian Punjab, farmers had to change their seeding practices--plant at a more shallow depth--to

obtain satisfactory emergence of the seedlings. Information about this and other needed production practices was provided to the Punjabi farmers through extension. In the case of IR8 rice, farmers in one major rice-producing district of South India rejected the variety when it was first introduced. After they had gained experience with an improved variety with intermediate management requirements, with strong support from extension, they then progressed to planting the high-yielding IRRI varieties.

The communication support program for technology transfer is logically a part of extension, although it must have strong linkages and interaction with other components of the program. A viable extension system or other technology diffusion vehicle is essential to effective communication support. Conversely, such communication support can and should contribute significantly to increasing the viability of extension.

D. Agricultural Infrastructure

Even though a farmer may be convinced that an improved technology or technological package would benefit him, he can adopt it only if the agricultural infrastructure is sufficiently developed to give him timely and adequate access to the required inputs (such as seed of an improved variety, insecticide or vaccine) and credit. He also must have access to a market at which he can sell his product at a fair price. Lack of farmer access to any of these can place an absolute constraint on adoption, particularly in the case of high input technologies.

Where such constraints exist, the communication support program can contribute to their alleviation through assuring that the relevant institutions and government are made aware. Messages directed to the farmers must indicate where, how, and to what extent they may be able to obtain scarce inputs and market their produce at a price that will give them a satisfactory profit. Or, if this is not possible, they must know alternatives for improving their production and profits.

The more relevant question in many situations is: under what conditions will the extension--and communication support--program have a reasonable chance of success? What technologies will be most appropriate? The development and preparation of message content (see Part One, Section IIIC, and Section VC below) for the communication support program must take such conditions into consideration.

If inputs and credit required for adoption of a high technology package cannot be made available to farmers, low technology packages may necessarily receive prominence in a year's program --such as, in an example from the Danli region of Honduras,

contour minimum plowing for hillside fields. If an input such as fertilizer will be scarce and/or high-priced, the best communication strategy may be for the communication program to concentrate on how to obtain the best results from fertilizer--if applied--rather than on the application of fertilizer itself. This strategy was adopted successfully in the Guatemala Basic Village Education Project (reviewed in Part Three, Section III) when such a situation was encountered.

E. Coordination, Interaction, Integration

Success in achieving extension's technology transfer objective demands a high degree of coordination and interaction among the four groups identified above, as well as integration of communication support into the technology development and support system.

In the technology development process, joint involvement of research, extension and farmers is particularly critical at the testing and adaptation stages. Coordination with agrosupport institutions (private and public) comprising the agricultural infrastructure is also needed to assure that recommendations made to farmers regarding improved technologies will be viable from the input/supply/service/market/price standpoint.

Areas in which coordination, interaction and integration are most critical, and procedures for achieving same, are identified and discussed in Part One, Sections III and IV.

IV. Communication and Communicator Functions

Major communication and communicator functions in relation to other program components are referred to in the foregoing chapter, and are explicitly identified in Part One. In general terms, communication and the communicator should be involved in virtually every phase of program activity. The most important specific functions are identified below.

A. Developmental Investigation

One of the first project implementation activities for which the communication group will be responsible is developmental (communication-related) investigation. Results of such studies will provide knowledge needed for planning and implementing appropriate communication strategies, such as: the characteristics of farmers (the target audience used as the example in this paper), their families and their communities; the forms in which technological information should be packaged to make it acceptable to and understood by farmers; and something about the ways in which farmers attach credibility to agricultural information.

Developmental investigation purposes and methodologies, and how results are used in developing appropriate communication strategies, are discussed in Section VB2 below; and guidelines for their application in a technology transfer project are suggested in Part One, Section IIIB.

B. Planning and Strategy Development

Although the communicator should provide leadership to determine the most appropriate communication strategies for a given program, substantive involvement of other program components and collaborating institutions is also needed. Conversely, for the communication support program to be most effective, the communicator should be substantively involved in both extension and joint extension-research planning and strategy development. His/her function will be to bring to the planning table:

- Relevant information about the target audience as revealed by developmental investigation.
- Knowledge about potentially suitable methodologies for delivering the desired information to and receiving feedback from farmers.

- Decision as to whether or not the communication component has the capacity to provide the desired types and degree of support.

- Recognition that message content for use in the program must be carefully selected and farmer-oriented.

- Judgment as to which of the media available to the program should be used--in what combinations and for what purposes--to provide maximum reinforcement and communication support at a reasonable cost.

Planning and strategy development are continuing, dynamic, iterative processes for programming, scheduling and reprogramming communication support activities to meet changing needs and opportunities (see Section VD4 below, and Part One, Sections II and IIIC).

C. Production of Educational Materials

The most visible function of the communication component, production of educational materials, is a complex operation that requires careful scheduling, close coordination, effective quality control, and extensive interaction with sources of information and users of the materials produced. The production process and its relationships to other communication-related activities and program components are addressed in Section V below and in Part One, Section IIIC.

D. Information Delivery

The primary function of the communicator with respect to delivery of information to rural families is obvious--to deliver materials produced to the appropriate dissemination channels (radio station, extension worker, newspaper, etc.) ahead of the time needed, and to ensure that dissemination is carried out as planned. He/she also has responsibility to train staff in the effective use of media, to coordinate dissemination activities and, in some cases, for direct dissemination (see Part One, Section IIIC).

E. Evaluation

Developmental investigation is the first step in a continuing evaluation process that proceeds to materials pretesting and formative evaluation as the program moves into operation. Once information is being disseminated to the farmers (and other

intended audiences), there is continuing need to check audience reactions to both the information and the forms in which it is being imparted.

Do the farmers find the information to be timely and useful? Is it being delivered to them at times convenient to them and through media to which they have access? Is repetition of the message through several media, or through the same media several times and in several ways, necessary to gain farmer understanding and acceptance?

The evaluation function of the communicator includes periodic studies to find out what is happening, correlating the results obtained with those from developmental investigation, and feeding the results back into the message development and production process to improve the program. Such studies will also provide an indication of the probable impact of communication support on overall program results. Later, the communicator may be asked to conduct studies specifically designed to assess communication support impact.

Evaluation functions are discussed in Section VB2 below in the context of understanding the farmer, and from an operational perspective in Part One, Section IIID.

F. Feedback

Several types of information flow are included under the general heading of feedback for which the communication component has some responsibility:

- Feedback to extension--including the communication component--from rural communities, families and farmers.

- Feedforward from the field to research concerning farmers' experiences in using recommended technologies and problems on which research is needed. (Contacts and interaction with farmers and familiarity with local agricultural conditions gained by researchers through conducting field trials constitute an important direct source of such feedforward.)

- Feedforward from the field to supply, service and marketing institutions to help them anticipate and plan for meeting needs for their goods and services.

- Feedback from rural communities, families and farmers to the policymakers and administrators who establish the policies and allocate resources that impact on the farmers' decisions to adopt or reject new technologies,

and on the capacity of extension (or other technology diffusion institution) to develop and sustain an effective technology transfer program.

Although "feedback" implies a one-way information flow, a multi-directional information flow system (communication network) is essential to facilitate the rapid and uninterrupted flow of information from, to and among all parties.

The communicator cannot be made responsible for collection of all information which flows through the communication network (see Part One, Section II for a discussion on types of information that will be relevant). However, one of his/her important functions is to provide leadership in developing and managing the networking system and in coordinating the collection and transmission of information. (See Section VF below for a discussion of the communication network.)

G. Coordination

Coordination of communication support activities with other components of the extension program and other institutions with which the communication component must collaborate is another critically important function of the communicator (see Part One). The extent and nature of his/her involvement with all facets of the program will, in the natural course of events, probably lead to an even broader coordinating role.

The communicator's coordinating function should extend beyond the boundaries of the program of which he/she is a part. He/she should also actively seek opportunities for improving communication support to the program through coordination and collaboration with other programs which also utilize organized communication support. As one example, timely agricultural information inserted into radio programs on health and nutrition could help to broaden the audience receiving the agricultural message, and vice versa.

H. Staff training and support

Although placed last in this sequence of communication and communicator functions, communication-related staff training and support must receive high priority from the communicator. Four types merit special mention:

- The first training priority must be to assure that all staff in the communication component are trained to the point that collectively they are fully capable of performing all of the functions cited above.

- Second, extension, research and other relevant staff need training (or retraining) in communication skills to support the program. As an example, researchers will be in direct contact with farmers in conducting field trials and participating in field days, meetings, etc.; the effectiveness of many researchers in getting their information across to farmers can be enhanced through improving their communication skills. The same is true of their effectiveness in staff training situations.

- Department heads and other senior officials will need orientation into the value of organized communication support and what it implies about resource needs and potential benefits.

- Field extension workers and other change agents (both public and private sector) will need pre- and in-service training, supplemented with strong backstopping in the field. The communicator should provide leadership to the organization and implementation of a regular distance learning program.

Modern techniques for improving the effectiveness of training imparted are discussed in Section VG below; and communication-related staff training and support are considered from an operational perspective in Part One, Section IIIE.

I. Summary of Functions

To summarize, the communication component and communicator should be either primarily responsible for or integrally involved in:

- Developmental investigation.

- Planning and strategy development.

- Production of materials for dissemination through the various media included in the channel strategies.

- Delivery of information to rural families.

- Communication-related evaluation.

- Feedback and communication network.

- Coordination.

- Program improvement.

11

Collectively, these functions constitute an iterative process that must continue so long as the technology transfer program persists. Communication-related staff training and support must be provided at each step in the process.

V. Communication Strategies

A communication strategy is a plan for the systematic use of communication concepts, skills, media, and methodologies to change human behavior through the transfer of new information or ideas.

Traditionally, the job of agricultural communication has been to motivate the farmer to "want" to use a new idea and then to teach him the skills and knowledge to apply it. Too often, the focus has been on the innovation rather than on the farmer. Its benefits have been described from the perspective of the project, ignoring the farmer's desires, constraints, costs, risks, etc.

Now, the job of agricultural communication must also include responsibility for providing leadership in determining what "want" means and how to best teach the new "skill clusters" (agricultural technologies and technology packages in our technology transfer example). Some of the critical questions are:

- What benefits will the farmer experience, and when?
- Will the farmer relate the new technology to the resulting benefits?
- Will the farmer perceive the cost (time, money, risk) as being too high?
- How can the relative costs and benefits be described to the farmer in the most persuasive way?
- What costs in relation to benefits will the farmer be willing to pay for giving up what he is already doing?

Although simple, these questions are too rarely asked in any systematic way. Yet, their answers are essential to the development of an appropriate communication strategy and, ultimately, to the success of any project in which the transfer of technology is an objective.

For example, one of the reasons given by some Sri Lankan farmers for not planting a second crop, which was being promoted in a diversified cropping project, was that they did not want to put in the extra time and labor required to grow it. If such an attitude should prevail and the potential benefits to the farmers be insufficient to convince them to change, that project objective would not be achieved.

A. Hybrids of a Different Kind

Many of the accepted principles of good communication are still valid; others have been expanded and made more effective. New communication methodologies and technologies have become available. Concepts borrowed from other disciplines and sectors have proved to be relevant, also, for agricultural projects.

For example, the Masagana 99 project in the Philippines (see Part Three, Section IV) demonstrated that ideas borrowed from fields such as advertising and marketing can be effectively added to large scale programs for rural development. Others, the Lesotho Distance Teaching Centre and the Mass Media and Health Practices Project as examples (see Part Three, Sections VI and VIII) have shown that communication concepts and strategies used in programs in other sectors such as education and health often have relevance to agricultural projects.

The key change has been a shift away from media-specific planning toward a systems approach to communication support. A variety of media and methodologies (radio, print, interpersonal contact, video, etc.) are used as part of an interrelated network of inputs targeted at specific changes directed by an identified farmer orientation. These three elements--farmer orientation, targeted change and media network--are the organizing principles around a growing set of hybrid communication strategies.

B. Farmer Orientation

A fundamental premise upon which successful communication programs must be based--whether in agricultural development or in business--is that the product (i.e., the information disseminated to achieve the desired behavior change) must be shaped to meet the consumer's wants, needs, and expectations. Thus, an agricultural communication methodology for technology transfer projects must consider the farmer first in order to offer "products" that will be of value to them. This "consumer" orientation requires much understanding of the farmer and recognition that farmers are not all alike.

1. The farmer as a participant

The farmer must be recognized as an active participant in the communication process, rather than as a passive recipient of information. He makes his own judgments concerning whether or not the information is relevant to his needs. As pointed out in the case examples from Guatemala and Mexico reviewed in Part Three, the farmer is an active catalyst whose needs, constraints, attitudes, and vocabulary "drive" the successful communication program.

Communication is not a link to the farmer; it is a link between the farmer and the researcher, planner and extensionist.

2. Understanding the farmer

In the past, communication programs tended to group farmers together, focusing more on their similarities than their differences. Packages of practices were developed for an area and recommended to all farmers, without taking into consideration the variability of farmers within that area or their perceived needs, constraints, desires, and attitudes. The task of communication was viewed as being limited primarily to motivating the farmer to want to use the recommended package of practices and then teaching him the skill or knowledge needed to apply it. Fortunately, the passive concept of communication is now rapidly changing to one of understanding the farmer and orienting the program--and its content--toward his perspective.

The Basic Village Education Project in Guatemala (see Part Three, Section III) used a combination of traditional survey research and some of the newer market research techniques to identify the characteristics of farmers, rural families, and communities in its areas of action and to understand their perspectives and problems. The communication system of the PRODERITH project in Mexico (see Part Three, Section VII) places high importance on the need to understand the farmer's perspective. In Malawi (see Part Three, Section V), investigators questioned the program's philosophy of program content because it failed to give adequate attention to understanding the farmer and his perspectives. (Steps are now being taken to incorporate that element into the Malawi agricultural communication support program.)

New tools for understanding the farmer's perspective are now available to supplement and/or supplant those used in the past. Although traditional survey research and anecdotal information still have their place, they are giving way in large part to behaviorally-oriented studies which are less expensive and time-consuming. Concept testing, focus group interviews, behavioral trials, and intercept interviews--proven techniques used by social marketing programs--are sound village research techniques which can help to identify the hidden constraints a farmer may encounter in trying a new innovation. They help to select vocabulary which the farmer will understand, and to integrate the new innovation into the farmer's own view of his problems and needs. They also provide information about the variability among farmers and their families.

The agricultural development program often cannot await the results from traditional survey research before initiating action. Behavioral studies such as those cited above (and described below) are essential to help answer not only "How good is the idea or technology?", but also "How good will the farmer think

the idea or technology is?" For example, there are at least five basic reasons why any new idea or technology might be rejected by a farmer:

- He may not have the knowledge or skills to use it.
- He may not have the tools or supplies to apply it.
- He may see no benefit from using it.
- He may benefit from doing something quite different.
- He may perceive the new idea or technology as not only having no benefit, but as being "punishing" in some way--more work, more costly, more risk, less status, etc.

There is urgent need for understanding the farmers, their perspectives and the variability among them at the outset of a project to enable planners to design communication strategies that are, indeed, farmer-oriented. This is not a one-time endeavor, however. Farmers' knowledge, attitudes and perceptions will change over time. Checks will need to be made on the validity of conclusions drawn from initial studies. Materials and methodologies used in the communication program will need continual checking to verify that the program is truly farmer-oriented, and to provide a sound basis for making corrections if it strays from the target.

A series of activities and research tools, adapted largely from other disciplines such as behavioral science and social marketing, are appropriate for these purposes. The principal purposes and methodologies for each are discussed below under four categories: developmental investigation, pretesting program materials, formative evaluation, and feedback. All require multidisciplinary planning, action and interpretation, as the project's needs include elements of agricultural research and extension, communication and social science. Leadership should be provided by a social scientist to assure that the behavioral aspects are adequately represented throughout.

a. Developmental investigation. One of the first activities to be undertaken in implementation of a project should be to design and conduct studies that will provide the types of knowledge and understandings about the farmer discussed above. More specifically, the purposes of developmental investigation are to:

- Understand the farmer's perspective, his perceived needs and desires, and his potential receptivity to the introduction of new technologies. This will include, also, assessment of the farmers' current agricultural knowledge, attitudes and practices as they relate to the particular technologies that project planners

anticipate will be disseminated.

- Detect hidden constraints--social, cultural, previous experience, economic, physical, or political--that may influence the farmer's reaction to the proposed program.

- Assess the variability among farmers and rural families in the areas of project action with respect to the foregoing.

- Determine how to "package" the project's messages in forms most likely to be received positively by the farmers--what media and what kinds of presentations they prefer (e.g., dramatization, spot announcements, dialogue, demonstrations), the vocabulary that should be used, etc.

The particular set of research tools to be used for developmental investigation studies will depend on resources and expertise available and the prior knowledge base concerning the areas of project action. Typically, they should include techniques such as:

Review of existing data and information to determine demographic, geographic, economic, cultural, and social characteristics of the target population of farmers; and to obtain information about the project's secondary audiences (discussed later), agricultural infrastructure, agricultural research and extension systems, and communication and media systems. Although the existing information base is usually incomplete and data will probably not conform exactly to the boundaries of project action, this review should provide sufficient information to provide guidance in developing other studies such as those listed below.

Focused group interviews to collect broad qualitative information on vocabulary, attitudes and concepts related to agricultural practices and the proposed technologies. In this technique, a trained interviewer uses a prepared list of probing questions with selected members of the target population brought together in groups of five to eight.

In-depth interviews to probe more deeply into individual attitudes of selected individuals. A new set of respondents with characteristics similar to those in the focused interview groups should be selected to build upon information collected during the group sessions. The quality of individual interviews tends to be more personal than the group interview because no group dynamics are involved. Such interviews have the disadvantage of being expensive and time-consuming, so

they are usually affordable for only a limited number of interviews. Therefore, the information obtained should be considered as an aid to professional judgment rather than the sole basis for making broad generalizations.

Observations through farm visits made in conjunction with the individual interviews, with a detailed observation guide used by trained staff to ensure standardized and appropriate observation of farmer behavior related to technology transfer.

Central location (intercept) interviews to obtain cost effective interviews in a limited time. These interviews will take place in local markets, farmer cooperatives, etc. Like focus group and in-depth interviews, however, the results must be interpreted carefully because they are not directly projectable to the general population.

Other small sample surveys to help quantify and substantiate hypotheses emerging from the other research activities. The number and design of such surveys will be contingent upon the results of other techniques described above.

Product or concept testing to determine what changes, adjustments, or adaptations need to be made in the information package to increase the likelihood of getting a favorable reaction from the farmers. On-farm trials and result demonstrations are an important type of product testing of new technologies and practices.

Project success will also depend upon effective communication with a number of secondary audiences such as researchers, input and service providers and retailers in the public and private agrosupport sector, markets and cooperatives, government policymakers, and agricultural leaders. Developmental investigation should be used to obtain information about the characteristics of these secondary audiences as well. Finally, the developmental investigation should yield information about the agricultural research and extension systems and the existing communication and media system.

Developmental investigation is discussed from the perspective of project operations in Part One, Section IIIB, and needs for information related to secondary audiences and existing systems are considered in relation to planning effective communication support in Part One, Section II.

b. Pretesting program materials. The results of developmental investigation will provide understanding of the farmers and guidance concerning the types, formats, and styles of presentation that are most likely to be accepted. They do not, however, ensure that the communication staff's interpretation of those

04

results will result in materials that are, in fact, understood and the messages well-received. The only way to verify this is to pretest new program materials in draft form with representative groups of the target population, and to revise accordingly prior to final production and dissemination through the program.

The volume and diversity of materials produced for the communication support program are normally too great to permit pretesting every radio program, graphic presentation, booklet and other educational material. Prototypical materials in each media must be pretested regularly, however, to ensure that they are accurate, comprehensible, attractive, and culturally appropriate.

To illustrate the possible consequences of not pretesting, one Guatemala Basic Village Education Project flipchart series was rejected in its original form by the farmers with which it was used. The reason: farmers present said that the hoe handle was shorter than the ones they used, so the information must have been meant for farmers in some other region.

The most innovative strategies, formats and vocabulary should be selected for pretesting. Thus, the level of pretesting should be greatest during the formative period of project operations when virtually all materials will be "new". Later, pretesting may drop back to a "maintenance" level, making periodic checks on the materials already in use and placing greatest emphasis on new types of materials added to the communication support program.

Criteria on which the adequacy of a given material should be judged include:

- Attractiveness
- Understandability
- Acceptability (not likely to provoke a negative reaction)
- Ability to create audience identification with the topic
- Persuasiveness

Key pretesting methods from which the design for a specific pretest should be chosen include central location (intercept), focus group and individual in-depth interviews, readability/visual literacy tests, and self-administered questionnaires. In designing, conducting, and using the results of pretests, it is best to:

- Use interviewers who speak the local language and dialect well and with confidence, are (insofar as possible) from the region in which the pretest will be conducted, are otherwise credible to the audience, and are familiar with the material to be tested and the types of responses required.

95

- Present "comparative" materials (the same information through the same media, but presented in different ways).

- Pretest the entire presentation and message, not simply its component parts.

- Use a valid sample of respondents.

- Pretest in a "real life" situation--in a setting familiar to the respondents and consistent with that in which they will normally receive the information.

- Compare test results with developmental investigation findings.

- Revise before proceeding to the final production stage if pretest findings reveal any problems with the material or its presentation.

- Revise the material and pretest again before using it in the educational program if results are strongly negative.

- Extrapolate pretest results to other materials in the media for which pretesting is not possible.

Pretesting should be an integral part of the educational programming system discussed in Part One, Section IIIC.

c. **Formative evaluation.** Formative evaluation may be defined as studies carried out to determine whether the messages disseminated to farmers have been timely and well received, and whether or not the various elements of the program are functioning as planned. It also provides a vehicle for assessing such factors as the attitudes of farmers about the usefulness and practicability of the technologies included in the program's message content (see following section), and whether those messages have been understood (if not, why not).

The techniques described above for developmental investigation are also appropriate for many formative evaluation studies. Formative evaluation differs from developmental investigation, however, in that it follows the project in progress. Results from formative evaluation studies should be correlated with those from developmental investigation; and, if there is wide divergence, additional studies may be needed to reconcile or explain the differences.

Formative evaluation is closely related to feedback and the two may coincide at times. In general, however, formative evaluation studies are designed to obtain quantifiable data, whereas feedback

information is qualitative and usually more comprehensive.

Formative evaluation differs from summative evaluation (evaluation of project results and impact) because it requires general reactions in short time frames for decisionmaking, whereas summative evaluation requires precise estimates and can afford more time to do the necessary measurements on larger numbers of people. If a project includes a summative evaluation component, many of the interim item measurement surveys will have direct utility as formative evaluation indicators. (See the review of the Guatemala Basic Village Education Project in Part Three, Section III, for an example of this use of summative evaluation results.)

Formative evaluation provides one of the major means for monitoring project progress, as discussed in Section VH below and Part One, Section IV, and is thus a powerful management tool. It can never be assumed that all parts of the project (including the communication component) are functioning as planned. On the contrary, constant monitoring is required to keep the project on track. The information obtained from formative evaluation, feedback and other reliable sources will reveal the need, and provide the basis, for making in-course corrections and adjustments to maintain a farmer orientation and increase program impact.

d. Feedback. Four kinds of feedback/feedforward needs, included here under the general heading of feedback, are identified in Section IVF above. Feedback is distinguished from formative evaluation in that it is part of a continuous monitoring process as contrasted to the discrete studies of formative evaluation. Information is collected regularly and systematically, and distributed immediately to the relevant program component or institution--communication, extension, research, agrosupport, government--that can act on it to improve the technology diffusion program and/or prevent or alleviate problems encountered in the field.

In general terms, a feedback system can be described as a communication network that facilitates the rapid, regular, and undistorted collection of information from the field and its transmission to those who have need to know and act upon it. (See Section VF below.) The key words in criteria to describe a viable feedback system are <u>comprehensive</u>, <u>frequent</u>, <u>systematic</u>, <u>reliable</u>, <u>promptly distributed</u>, and <u>prompt followup action</u>. Any feedback system that meets these criteria will satisfy the needs of the communication component and the project as a whole.

The mechanisms or channels used for collecting, collating and distributing feedback information will be determined in large part by the existing skills and systems of concerned agencies, including but not restricted to the project <u>per se</u>. Interaction among the project and such agencies, and appropriate negotiation, will be required for planning, establishing and operating the feedback system most appropriate for a given project. For purposes

of illustration, feedback-related responsibilities might be assigned as follows:

- System design, including a format for collection of feedback information and the types of information needed.

  Communication staff (under the leadership of the feedback coordinator), in collaboration with other institutions, agencies and individuals who will need feedback from the field.

- Collection of information in the field and its transmission to the project.

  Extension service.

- Collation and summarization of information received, and its distribution to those who need it.

  Joint responsibility of communication staff, extension and research.

- Appropriate action for which need is revealed by feedback received.

  Institution or agency concerned.

The system must be dynamic. It should be expanded over time to add more sources, collectors and users of information; and transmission and distribution procedures should be refined and improved as operational experience is gained (see Part One, Section IIIC).

3. Localized programming

A communication strategy that is farmer-oriented must localize its programming and differentiate message strategies for different groups of the farmer audience.

Experience in projects such as Basic Village Education in Guatemala and Mass Media and Health Practices in Honduras and The Gambia (reviewed in Part Three) has demonstrated that it is possible to segment and direct messages at special groups even with broadcast media which are conventionally considered to be impersonal and not location-specific. Techniques such as message tone, characterizations, personalization, and scheduling can be used to localize messages and reach important subgroups with relevant and persuasive information. An example from the Guatemala project will serve to illustrate.

Agricultural credit was a core message theme of the Basic Village

Education Project (BVE). Information about why and when credit might be needed, how it should be used, and how to secure it was disseminated to farmers through mass media (principally radio) and BVE monitor-led meetings using audio cassettes and flipcharts. Various presentations were used, such as dramatizations, interviews, questions and answers, and spot announcements. The basic message was scheduled just ahead of the time that farmers would need to apply for crop production loans.

To improve the farmers' access to credit, BVE radio also informed its listeners of the dates on which credit agents would be in each community to help the farmers with their credit applications. They were informed, too, about what information and documents they would need to complete their applications. Through such localization of information, the number of farmers served by each credit agent increased dramatically.

C. Message Content for Targeted Change

The next basic element for developing an appropriate and viable communication strategy is to focus on selecting, organizing and prioritizing the content of the agricultural messages. The first step must be identification and establishment of project purposes and specific objectives to achieve targeted behavior change.

In some programs, benefits from using a new technology may be dramatic and immediate--as in the case of oral rehydration therapy for control of infant diarrhea, the central message of the Mass Media and Health Practices Project referred to earlier. This is seldom the case in agriculture.

Farming is an integrated and cumulative process which is necessarily reactive to unpredictable events; and the production and profit benefits of adopting a new technology will likely not become evident until the end of the season. Drought, floods, lack of credit, pest attacks, or other problems can completely obliterate benefits. Therefore, simple media messages about the wonders of a new crop variety or other recommended technology may only produce frustrated and skeptical farmers.

Clearly the messages must be carefully selected to ensure that the observable outcome is perceived as rewarding. This requires development of messages which help the farmer to deal sequentially with seasonal problems as they are encountered, and to understand the potential risks involved with the new technology in relation to those he encounters at present.

The amount of information is another important factor in deciding on message content. How much information can the farmer be

expected to absorb in a given period of time? Look to behavioral studies and continuing feedback for guidance. From the project's perspective, how much information can be generated, transformed into presentations acceptable to the farmer, and disseminated through its media network?

Hard decisions are required concerning what constitutes a "complete" message on a given technology, the sequencing of messages, and the amount of information to be included in a year's programming. In a given year, it may be necessary to choose between two important message sequences--corn production and introduction of a new cash crop as an example. The options could well be to: concentrate on one this year and the other next year; give primary attention to one this year, and only enough on the other to create farmer interest; or treat both message sequences equally even though it may mean sacrificing some quality of content and/or presentation with the possibility of reduced program impact on either. Only those involved in the program--including the farmers--can determine which option would be preferable.

In making such decisions, four different perspectives must be considered:

- <u>The farmer's perspective</u>

  The need for understanding the farmer's perspective and orienting messages toward the farmers has been discussed at length earlier in this section.

- <u>The researcher's perspective</u>

  The researcher must make a judgment as to when a given technology is sufficiently developed and tested under farmer conditions to justify recommending it. To make a sound decision, he/she must understand both the conditions prevailing in the region and the farmers expected to take advantage of the technology. Many researchers tend to be too conservative in recommending the adoption of new or improved technologies and would prefer to have "one more year" to test it. The project, on the other hand, is usually looking for new technologies to add to its message content; and, if farmers have been involved in on-farm testing and are convinced that something is good, they are anxious to try it. These differences must be reconciled in deciding when (or whether) to go with a new or improved technology.

- <u>The agrosupport institution's perspective</u>

  It will be to the advantage of the agrosupport institution to have farmers increase their production and profits,

and to use more of the inputs and services which they provide. On the other hand, their capacity to provide those inputs and services is frequently limited. Farmer access to markets is also frequently a problem. Agro-support sector judgments as to whether they can satisfy the needs of farmers who decide to adopt a new technology must be taken into consideration in deciding when and to what extent a particular technology is promoted by the project.

- The government's perspective

  The government is also anxious to have farmers increase their production and profits to contribute more to the national economy. Government policies must take into consideration total national needs, however, which at times may not coincide with the benefits to be derived from farmer adoption of a particular technology. For example, if corn production already exceeds domestic needs and there are no export markets available at a time in which the country is facing a shortage of vegetables, the government will be more amenable to providing incentives for increasing vegetable rather than corn production. Pricing policies, resource allocations for agricultural programs, and other government actions that impact on the potential economic viabiltiy of using a particular technology must also be taken into consideration in deciding what information to emphasize in the project's communication support program.

In summary, the decisionmaking process that guides message development to achieve targeted behavioral change is complex, and must take into account a number of factors beyond the technological and biological suitability of each new technology that could be included in the project's message content. A practical approach to developing and preparing message content for dissemination to farmers is suggested in Part One, Section IIIC.

D. Behavioral Objectives

Simply stated, behavioral objectives for the technology transfer project are descriptions of what the farmer will think, understand or be able to do concerning technologies included in the project's message content if the communication program is successful. Determination of the clear, measurable behavioral objectives needed to guide all program activities should be based on behavioral analysis that includes:

- Identification of the behavioral parameters of the technology transfer based on the developmental investi-

41

gation and existing data which identify current behavioral patterns of the farmers and their environmental context.

- Development of a sequence of measurable steps necessary for complete transfer of the technology.

- Measurement of each behavior against criteria which emphasize its consequences, performance costs, compatibility with existing behavior patterns, and observability.

Behavioral objectives should be stated in terms of the level of anticipated program participation, extent of technology transfer, and changes in farmer knowledge, attitude, and behavior. They need to be quantified so that they can be translated into action, and set in order of priority--not all objectives are equally important, and communication interventions on some must precede those related to others. Personnel and other resource limitations also need to be considered in development of the project objectives to ensure that their achievement is realistic within the constraints of limited resources.

Behavioral objectives are needed at two levels--those established for the project and, derived from them, the specific behavioral objectives related to each message sequence (technology or technology package) to be used in the communication support program. An illustrative list of specific behavioral objectives for a given technology might include:

- The farmer is aware of the technology.

- The farmer learns more about and understands the technology and its relationship to what he is presently doing.

- The farmer is motivated to try the technology.

- The farmer knows how to use the technology.

- The farmer knows where and how he can obtain needed inputs, services and access to markets if he adopts the technology.

Depending upon the nature and complexity of the technology, the number of specific behavioral objectives may be much greater. The important thing is to include in proper sequence all of the measurable steps required to get the farmer to try and then adopt the technology.

No farmer is likely to be able to adopt all of the technologies that may be recommended. He must think and act in terms of what combination of technologies are best for his total farming enterprise and under his situation, and must make choices among the various technologies which may be available. Therefore,

42

the farmer-oriented communication strategy must also move beyond persuasion, instruction, and reinforcement related to a specific technology to a set of educational objectives directed toward helping the farmer improve his ability to make appropriate choices among technological options.

E. Media Network

No single media channel or strategy will be sufficient for achieving the project's technology transfer objectives. On the other hand, it is not feasible to use all conceivable channels and methodologies all the time--costs of such a strategy would be exorbitant, and the media network unmanageable. The issue in selecting media to use in the communication support program is "Which media combinations will be most effective in each situation and for each message to achieve maximum impact at minimum cost?".

Broadcast media can reach large numbers of people quickly with relatively simple information. Interpersonal communication channels are still the best way to teach and develop credibility, but the numbers that can be reached are limited. Print media are best for providing complex information or as a timely reminder about information that is too detailed or complex for people to remember. Audio-visual aids have the potential for increasing the effectiveness of interpersonal channels.

In the technology transfer project, large numbers of people must be reached quickly; they need a reference or reminder about what they have been told; and they have to believe in the integrity and worth of the program if they are to heed advice and information received. Therefore, elements must be selected from each of the media groups and integrated in a manner that results in achieving a total impact that is greater than the sum of the individual impacts. If that selection is sound, each component will energize the others to facilitate the flow of information from external sources into the community, within the community, and from the community to external information sources.

Situation-specific channel strategies (the media and communication methodology combinations to be used and how) are needed within the overall communication strategy. They should be based on: understanding of the project areas of action; the content of a given message sequence; and the intended audience. This component of the communication strategy is developed in Section VE4 below.

Access of the project to desired media is another factor that must be taken into consideration in determining which media to use and when. If the project's base institution does not have facilities and expertise to produce materials and disseminate

information through a desired media, the project will have at least four options:

- In-house capability may be provided.
- If production and dissemination facilities and expertise are available outside the base institution--in the private or public sector--it may be possible to negotiate a contract or some type of collaborative arrangement for media production and dissemination.
- If some, but not all of the types of facilities needed should already be available, in-house capacity may be provided for the most critical ones which are missing.
- If no existing communication facilities are available for a particular media, substitution of another may be possible since, within limits, <u>how</u> media are used is more important than <u>which</u> media are used.

Decisions concerning the options to be used should be based on both need and cost. As a general rule, costs can be reduced through arranging for use of existing outside facilities. To exercise this option without jeopardizing communication program effectiveness, however, safeguards must be built into the agreement. There must be assurance that the project communication component maintains control of content and presentation, and that planned schedules are fully met. The option most appropriate for a given project is situation-specific and can only be determined on site. Information obtained during pre-program developmental investigation will provide guidance. This issue is discussed in operational terms in Part Ones, Section II.

This framework--general media characteristics, the need for multimedia interventions, the channel strategy, and access to communication facilities--provides the basis for selecting the most appropriate mix of media/methodologies for each situation and each agricultural technology. Media and methodologies appropriate for use in a communication support program are listed and discussed briefly below, followed by discussion of channel strategies for specific situations and messages.

1. Broadcast media

Broadcast media are most appropriate for reaching large numbers of people quickly with relatively simple information.

Radio is established in nearly every country, and has wide coverage and general acceptability. As discussed earlier, although conventionally considered to be impersonal in nature, experience has demonstrated that radio broadcasts can be personalized and localized. They can also be a unifying element of the communication

94

program through relating interpersonal channels and graphic/print materials to the information being broadcast.

Initially, developmental investigation should determine the extent to which radio should be used, the best formats for specific messages, and the presentation of the most appropriate information. After educational programming is underway, formative evaluation and feedback should be the determiners. Inputs from agriculturists, communicators and social scientists are needed for making such decisions.

Radio formats that have been used successfully in agricultural development projects include:

Spots. Air time for spots is usually purchased, so they can be aired at the most strategic time for obtaining maximum listenership from farmers in the areas of project action. Since they are by definition short, they can be repeated as many times as necessary to assure that they have been heard and their messages understood. For the same reason, they are easier and less expensive to produce, and are more amenable to pretesting. They have proven effective in developing countries to create demand for products and services, and to remind people of the need for taking particular actions at the right time. Spots are appropriate for introducing new ideas and concepts, for reinforcing those ideas, and for providing certain factual information such as when an extension agent will be in a given area or when and where seed of a new variety can be obtained.

Spots also have their limitations. They can provide only a limited amount of information, and are therefore more effective in the repetition of a familiar message than in the introduction of more substantive messages. They tend to create image and memorability through slogans, music, and a central theme, and to focus less on the depth and seriousness of the message.

Radio interviews. The technique of using local people on regional broadcasts is an effective way to establish a viable link between the program and the community. If credibility of radio is a problem, the presence of an identifiable local person can serve to break down the credibility barrier. The use of local people guarantees a certain amount of candor with regard to local needs and concerns. The overall village information source/communication process is enhanced if local persons to be interviewed have been selected by their peers during an open meeting convened to express community needs and concerns. Limited interviews with experts are also useful to add credibility to the technological content of the message.

Radio dramas are popular forms of entertainment throughout Latin America and in other parts of the world, and have long been used for diffusion of population and family planning information. In agriculture, this technique has been used successfully in cultures as diverse as those in Guatemala and Malawi. The radio drama has the advantage of being able to present and reinforce information about agricultural technologies in the context of a social situation through characters who are well known to the listeners. In areas not constrained by cultural taboos, this technique also provides opportunity for substantive involvement of women and youth in the information dissemination program.

Radio dramas have the disadvantage of being relatively expensive to produce as they require scripts, actors/actresses, and continuing story lines.

Radio lectures or "talks". Although radio "talks" have been disparaged as dull and unresponsive, and have tended to fall out of favor, well-prepared talks cannot be discarded as an effective format for radio communication. In some cultures, including much of Africa, there is a long history of well-accepted radio talks. If properly timed and presented in an interesting manner, a talk can be an appropriate intervention in a multiformat program. Detailed and specifically directed information about a technology or set of technologies in which farmers and their families are already interested can often best be presented through this technique.

Radio community response programs. In many rural areas of the world, radio stations serve as intermediaries among communities, individuals and institutions. In the Guatemala Basic Village Education Project, for example, BVE radio responded over the air to each of the hundreds of letters received by its radio stations, giving the name of the sender and answering questions received. Community events were announced and other public service announcements of interest to the community were made. The result of such services to rural communities and people was high listenership, personal identification with the radio station, and greater acceptance of the extension worker.

The application of this technique must be adapted to fit the situation. If local radio is available, it can be used in the manner just described. If only national radio is available, the same type of result--although sometimes to a somewhat lesser degree--can be obtained through directing program segments at specific communities or areas in which there are questions of common interest.

Longer multiformat radio programs. Well-conceived and well-produced multiformat programs offer several strong

46

advantages in mass media information dissemination provided they are aired on a regular schedule at an hour when farmers and their families can listen to them. They provide opportunity to present information in several ways during a limited time so that it can be more fully absorbed and understood by the audience.

The multiformat program also provides opportunity to motivate discussion within the family about the new/improved technologies being presented and what they might mean to the family farm enterprise, thus involving women and youth more fully in decisions which the farmer may ultimately take. Finally, the change of pace inherent in multiformat programs helps to maintain interest and avoid monotony.

Planning and production costs of such programs and the higher cost (in relation to spots) of purchased air time are disadvantages that must be carefully weighed in determining the proportion of available resources allocated for this type of radio programming.

Radio listening groups. Radio farm forums, such as those introduced in India in the 1960s, have been difficult to maintain, especially since the advent of the transistor radio. They have typically not been integrated adequately into an ongoing extension program; there has been a lack of creative programming; and forum group members have tended to tire of the effort required for regular attendance.

A modification of the radio farm forum, listening group programming using audio cassettes, has been more successful. This technique offers advantages over conventional radio forums, particularly if accompanied by visual aids such as flipcharts and handout materials. The technique is highly flexible. It can be used by extension agents in their group meetings for one or a short series of sessions about a specific agricultural technology without the necessity to maintain listening groups indefinitely. The cassette messages can be targeted at a specific audience segment or production area. If well-prepared, such programming can increase credibility of the message by including the voices of researchers, local people, and others known to and respected by the listeners. And an element of entertainment can be provided.

Audiocassettes can also be used by volunteers in the communities to stimulate discussion among their friends and neighbors and to add depth to messages broadcast over the radio. Another potentially effective application of this type of programming is the playback of recorded messages at public places where people congregate, such as in a marketplace.

Production costs of audio cassettes will vary, depending upon the formats used. Major delivery costs include purchase of inexpensive cassette recorders to use in the field, and batteries to energize them.

Radio programs for extension workers. Such programs, designed to provide extension workers with a continuing flow of current information concerning the execution of their professional responsibilities, are seldom cost effective if used exclusively for this purpose due to the small audience. They may be justified, however, in cases where extension agents are widely dispersed in isolated areas with minimal communication facilities or where an audience of non-extension workers is developed which also regularly listens to the programs.

Television/video. These media have the advantage over radio of reinforcing the spoken message with a visual image. They have an advantage over movies in that videotaped instructional and educational programs related to the technologies included in the project's message content can be produced more quickly and at lower cost. The use of television in the communication support program will be justified only in areas in which the majority of the farmers and rural families have regular access to it. Video is becoming increasingly popular, and is a highly effective teaching tool. Videotape use is most often associated with group events or training situations, so video should probably be considered more as a teaching or training aid rather than a broadcast media.

2. Interpersonal communication channels

Interpersonal communication, the basic methodology used in Third World extension programs, is still the best way to teach and develop credibility. The channels used include extensionists, group meetings, community organizations, field trials and demonstrations; and relevant public and private sector institutions, organizations, companies and their personnel.

Various techniques--such as concentration on working with groups, the "contact farmer" approach used in the Training and Visitation Program, the "Stage II Village" approach used in some districts in India, and farmer training centers supplemented by one-day training sessions at local centers as practiced in Malawi--have been adopted to increase the number of farmers served. Nevertheless, the number of farmers that can be reached solely through interpersonal communication channels is still limited by the number of field extension workers and other diffusion agents available and their mobility.

Extension Agents, using interpersonal communication channels to interact with farmers are and should continue to be key elements

98

of technology transfer projects. They are also key elements in collection of reliable feedback from the field, not only about the progress and problems directly associated with the project, but also about other factors outside the purview of the program that may affect its communication strategies and overall performance and impact.

Incorporation of extensionists and other diffusion agents into the multimedia interrelated communication network described above will result in new and/or modified roles for those workers. To make the transition and function effectively in their new roles, major retraining will probably be required (discussed in Section VH below). Briefly, it should include training in:

- Behavioral science and communication--to increase skills as communicators and teachers.

- Agricultural technology--to increase knowledge and understanding about the specific agricultural technologies which will constitute the program's message content--what the farmers need to know to use them successfully, supporting information the farmers will need for adopting them, and the relationship of those technologies to others now used by farmers.

- Field trials and demonstrations--to provide the understanding and skills required to enable the extension worker to collaborate effectively with researchers in conducting and interpreting them, including the interpersonal skills needed to obtain farmer-cooperators and to use field trials and demonstrations to maximum advantage in promoting the adoption of appropriate technologies by farmers.

- Feedforward and feedback--as discussed in Section VB2d above.

- Other elements of the communication strategy--to enable extension workers to take advantage of other communication interventions to reinforce their own work and, in turn, to reinforce the impact of such other interventions.

Guidance in developing the interpersonal communication component of communication and channel strategies, and in developing and maintaining relevant extension staff training programs, should be taken from the results of developmental investigation, formative evaluation and feedback.

On-farm trials and demonstrations, at the interface between research and extension as discussed in Section I above, are critically important to the interpersonal communication strategy. Although researchers will have primary responsibility for designing

and conducting on-farm trials to test and adapt new technologies to local conditions and determine farmer acceptance, extension agents should collaborate and be fully involved. In addition, the extension agent should take full advantage of such trials in his/her ongoing interpersonal communication activities--organizing field days at the trial sites, publicizing the trials and encouraging people to visit them, disseminating the results at group meetings, etc.

Demonstrations, the most effective single technology transfer technique, should be a major activity of the extension agent, in collaboration with researchers. The use of demonstrations in the interpersonal communication strategy is similar to that just described for on-farm trials; but they have the advantages that more simple designs can be used and that the farmer-cooperator will conduct them with only guidance from the extension agent. From the farmer's perspective, this farmer involvement adds to the credibility of results--if the cooperating farmer can achieve satisfactory results and benefits, other farmers will be more confident that they can do the same.

Other public and private agencies with representatives working in the areas of project action constitute another potentially important interpersonal channel for technology diffusion. Although sometimes viewed with suspicion (particularly private agribusiness firms) because of the fear that they will bias information to further their own interests, such agencies collectively have contact with large numbers of farmers; and safeguards can be developed to preserve the integrity of the information. Also, any information distortion will soon be detected through a good feedback system. The potential benefits from utilizing such agencies appropriately as diffusion agents far outweigh the risks involved.

Rural women's and youth organizations are still another potentially important technology diffusion resource to be included in the interpersonal communication strategy. For this to be effective, extension agents and promoters working primarily with programs for women and youth must receive the same types of training described above for extension agents.

3. Print and graphic media

Print and graphic media are grouped together for the purposes of this listing of appropriate media, as many of the materials produced for the communication support program will have elements of both.

Printed media are best for providing complex information or a timely reminder of information that people otherwise cannot be expected to remember. Detailed information about recommended technologies and practices--and instructions for applying them--can

be presented in a style and at a level appropriate for the intended audience, providing both short and long term reinforcement of messages received through other media. Their understandability can be enhanced through illustrations and photographs. They can be targeted toward specific audiences—for example, an extension worker will need more detailed information about a technology than would normally be included in a leaflet prepared for farmers.

Graphic media are most useful as teaching aids in group situations, to announce or publicize events or products, for visual reinforcement of information presented through other channels, to gain identity for programs and campaigns, and to convey information to largely illiterate audiences.

Major disadvantages of print and graphic media are the costs associated with writing, editing, preparing illustrations, printing, and distribution. These costs can be justified only if: uses of printed and graphic materials are carefully integrated into the multimedia interrelated communication and channel strategies; the characteristics and needs of the intended audience are known, understood and applied; and at least prototypical materials are pretested in draft form before going into final production.

Major types of print and graphic media appropriate for use in a technology transfer project communication support program include:

Training manuals, for use in training extension workers and staff of other agencies who participate in dissemination of information to farmers and their families in the areas of project action. Two types of manuals will be needed: 1) message content manuals to provide detailed information about the technologies to be included in the communication intervention (which require regular updating); and 2) skill-type manuals on how to become a better teacher, how to collect, organize and report feedback information, how to conduct a result demonstration, etc.

Information bulletins and folders, to reinforce information disseminated through other media, serve as reminders to farmers about a critical technology or practice, and provide step by step instruction about how the technology should be used. The information should be localized and presented in the vocabulary of the farmers as revealed in the developmental investigation. Prototypical materials should be pretested prior to final production, and distributed through channels most appropriate for achieving maximum reinforcement and impact at least cost.

Photonovels have been demonstrated to be particularly effective in reaching semiliterate and, to a degree, illiterate audiences. For example, <u>fotonovelas</u> (as they are known in Latin America) produced in the Guatemala Basic Village Education Project were

effective communication tools, well accepted and understood by farmers and their families. It is preferable that nonprofessional people--people from communities within the areas of project action--be used as "actors", and that reliance be placed on actual village community situations for the story line and dramatic context of the agricultural message. The photonovel should mesh as closely as possible with radio programming--themes, actors and situations drawn from one medium should reflect similar themes, actors and situations from the other.

Production of the photonovel is a straightforward process. Nevertheless, planning, layout, and production are relatively time-consuming and expensive.

Comic book presentations are best suited for urban, media-wise and fully literate audiences. It is an excellent medium for communication with children who can learn from it themselves and pass it on, with explanations, to their illiterate or semi-literate parents. Comic book presentations targeted at illiterate adult farmers in the Guatemala project were well accepted and understood, probably due in large part to the fact that the majority of families included at least one literate member.

The production and use of comic books in most communication support programs are limited by the high costs associated with the required large artist input.

Flipcharts can be effective teaching aids in staff training situations and for extension workers in group situations, provided they are well done and conform to the visual literacy and related characteristics of the group members.

Posters and flyers are most appropriate for short term announcements, publicity, or reinforcing a simple concept or product during the course of an intensive multimedia campaign. For example, posters might be used to publicize a new agricultural radio program or a field day at an on-farm trial or demonstration. They can also be effective in giving an identity to a campaign or program.

An advantage of posters and flyers is that they can be produced and distributed quickly. That advantage must be balanced against the relatively high production costs, however.

Photographs, although they can be used for some of the same purposes as posters and flyers and have the added advantage of realism, are most useful when used to add credibility and to create interest. They also may be required at times to convey technical information, as in the case of plant pest identification. High costs of film, processing and printing are constraints to their extensive use.

102

Slide series are excellent communication tools for serving the same general purposes as flipcharts, and have the added advantage of realism.

Simple handouts provide group event participants with useful reminders of key information presented, thus reinforcing information they receive through other channels. Such handouts can be produced rapidly at modest cost, and should be used extensively in multimedia communication support programs.

As stated at the outset of this section, no single communication medium or methodology is sufficient to get the job done. An interrelated media network is essential for achieving a project's technology transfer objectives, but it is not feasible to use all of the conceivable channels and methodologies all the time. The challenge in developing an effective communication methodology is to orchestrate the various possible inputs to maximize their total impact and to minimize costs.

The general configuration of media and methodologies to be used in the communication support program should be a part of the communication strategy (see Part One, Section II). The specific combination of media and methodologies to be used for a given series of technological messages in a given area is identified in the channel strategy.

4. Channel strategies

A channel strategy indicates the specific combination of media and methodologies to be used for a given message series, the purpose, the formats, the sequence of the media/methodologies, to whom and how materials are to be distributed, and who is responsible for dissemination of information through each of the media/methodologies. In short, it details the manner in which the communication strategy will be implemented for that particular message series.

The channel strategy is situation-specific. Its development requires understanding of the areas of project action, the intended audience, and the content of the message sequence for which it will be used. It should be based on information obtained through developmental investigation, formative evaluation, feedback, and sources of the technical information to be included concerning such questions as:

- Who listens to what and when?
- Who reads? Who <u>can</u> read?
- What are the costs of each media channel that could be used?

- How complicated is the message to be given?
- How receptive to, or tired of, radio is the target audience? Of print? Of group meetings? Of extension agents?
- Who do the farmers trust? What media?

A channel strategy is needed for each message series--each technology or technological package--included in the project's communication support program. The strategy may be relatively simple or complex depending upon the nature of the technology and the local situation.

The channel strategy concept is illustrated below by an over-simplified hypothetical example, synthesized from components of two successful projects reviewed in Part Three, the Masagana 99 campaign in the Philippines and the Mass Media and Health Practices Project in The Gambia. (The objective of the first was to increase rice yields, and of the second to popularize a new medicine for diarrhea.)

<u>The example</u>

Situation: Farmer literacy is relatively low, but many farmers have relatives or friends who can read.

Most of the farm families have transistor radios.

A new treatment for controlling an insect pest that frequently devastates the rice crop has just been perfected. The treatment includes use of a new insecticide that must be mixed on site and can be hazardous if not handled properly.

Problem: Insect surveys have revealed that the insect is building up rapidly in a major rice-producing area; but the farmers have no knowledge of the new treatment, and the extension network is spread so thinly that not enough farmers can be reached through conventional extension methods in time to control the insect problem this year.

Behavioral Objective: Farmers learn how to mix and apply the insecticide correctly and safely, and use it to control the pest in their rice fields this year.

Channel Strategy: Arrangements are made with chemical supply houses to place adequate supplies of the needed insecticide in local stores throughout the affected area, and their support to participate in the campaign is enlisted.

A simple illustrated folder which gives step by step instructions for mixing and applying the insecticide and safety precautions to be taken is designed and printed in large numbers. The folders are distributed in quantity to local stores in the affected area, to extension workers, to community organizations, and to the "flag farmers" described below.

Radio broadcasts aired ahead of the time the insect is expected to attack are used to make the farmers aware of the impending problem, to inform them about the new treatment (including the safety precautions they must take when using it), and to let them know about the folder and where it can be obtained.

Press releases are distributed to local newspapers to publicize the impending problem and that a new treatment is available to alleviate it.

Extension workers stationed in the affected area are trained in the use of the new treatment and, at the same time the broadcasts are being aired, they are training small groups of farmers in how to mix and use the insecticide safely. Each trained farmer receives a colorful flag to fly over his house identifying him as an "expert mixer".

A second set of radio programs instructs the farmers in how to mix and apply the insecticide properly and safely, and informs them that the "flag farmers" in their community have been trained and are sources of advice concerning the treatment. (Each "flag farmer" is given a supply of the folders to distribute to neighboring farmers as reminders of how to mix the insecticide properly and apply it safely.)

Special radio programs are produced and aired to reach farmers in isolated areas with instructions about the treatment and how to obtain and use the folder, and to inform them about the "flag farmers" to whom they can go for advice.

This hypothetical example illustrates how each of the media--print, radio and interpersonal contact--interact cumulatively. It must be emphasized, however, that the example is oversimplified. Agricultural problems are usually much more complex and long term, and will require development and implementation of channel strategies appropriate to each situation. But the principle

will remain the same: development of a specific and systematic way to ensure that prioritized messages, delivered through appropriate channels and directed at specific selected audiences, will interact with each other to promote change.

F. Communication Network

The purpose of a communication network is to ensure that project action and progress are not constrained by informational bottlenecks. Its function is to facilitate the flow of information to, from and among the farmer, research, extension, agrosupport sector agencies, and government. The communication network concept, and the array of people, institutions and agencies comprising it, are illustrated in Part One Figure 2.

Among the major benefits to be derived from a viable communication network functioning effectively are:

- Coordination and collaboration between and among the institutions and agencies involved in the project or that impact upon the project will be facilitated.
- Appropriate action can be taken promptly by the relevant agency to correct or alleviate problems encountered in the field or elsewhere at any stage of the project, based on sound information flowing through the network; or the communication strategy can be promptly adjusted as appropriate if such action is not possible.
- Support for a good project will be enhanced through the increased understanding of and knowledge about it by all network members.

The channels through which information flows to, from and among the network members will depend upon what is available or to which access can be gained. Telephone, teleconferencing, telex, telegraph, personal contacts, meetings, reports, two-way radio, and computer networks are among the possibilities. The keys to successful operation of the network are coordination and management.

The discussion on feedback systems in Section VB2d above is equally relevant to the more comprehensive communication network except that the number of sources, collectors and users of information is expanded. The process described for planning, establishing and operating feedback systems will also serve for the network as a whole. In other words, the feedback system should be a part of the communication network system.

G. Staff training and support

Communication-related staff training and support needs are identified in Section IVH above, and discussed in an operational context in Part One, Section IIIE.

The methodology used should address training as an agent of behavior change, not as an end in itself. Much has been learned about how to improve training through recent experience in AID-funded development communication programs; and behavioral science has contributed simple but powerful insights for improving training. Such principles should be adapted and applied in organizing training events with communication-related objectives (Smith 1985).

The first step is to identify in detail the behaviors which constitute competent and effective practice, with each component specified in terms that are measurable and observable. The behavioral practices which need to be instilled, and those which presently exist, should be analyzed and used as the basis for selecting training objectives. An inevitable outcome of this process will be a list of target objectives that far exceeds the realistic scope of training. Thus, what <u>not</u> to teach becomes as important as what <u>to</u> teach.

Selection of trainees for each training event should be based on the behavioral objectives in relation to their job responsibilities, also taking into consideration problems of scheduling, distance, etc.

For most effective training, the teaching methodology should be guided by the following principles from behavioral science that are equally applicable to communication skills and technical agriculture training:

- <u>Give the trainees reasons to care about what they are about to learn</u>.

  Principles and rationale should precede instruction in procedures.

- <u>Provide a model to be observed and imitated</u>.

  Teaching should be primarily by example, using lecture only to provide rationale and explanation. Each trainee should actually perform all of the elements under supportive supervision.

- <u>Gradually eliminate "prompts" until the entire performance is carried out by the trainee without assistance</u>.

Initially the trainee imitates the trainer. Then, the trainer should stop modeling but provide positive feedback at each step taken independently and executed correctly. Finally, the supervisor should provide positive feedback only after the trainee has completed the entire performance independently.

- Analyze the training task into its component parts.

  This is to assure that nothing is overlooked, and because learning each component is much easier than attacking the process as a whole.

- Use positive reinforcement and help trainees to avoid errors.

  The task analysis should make each step in the learning process so small that trainee success is virtually assured from the outset. Each successful approximation should be rewarded with praise. Extensionists should be taught in small steps and encouraged to use positive reinforcement when training farmers.

- Use uniform words, phrases and formulations throughout.

  Instruction should be coordinated internally, and be consistent with radio messages, posters, written instructions, what agronomists tell their clients, etc.

- Make the learning situation as realistic as possible.

  Materials available locally should be used during practice and training sessions.

How the trainee learns and what happens immediately thereafter have a profound effect on how well a new skill is remembered and executed or how accurately technical information is conveyed. Newly learned skills and knowledge are fragile and subject to disruption by a change in setting. Therefore, training should be continued to the point that the trainee is able to execute the procedures or impart information accurately and with confidence when he/she returns to his/her own setting.

- Change the performance from the model and determine whether the change is detected.

  Asking the trainees to identify a change in performance which is an error of omission or commission will help to establish their ability to recognize whether each step is or is not performed correctly. This skill will allow them to maintain their own performance,

and to recognize competence in those whom they instruct.

- Get trainees to perform at a rate which approximates that of a well-practiced individual.

  Rate of execution provides an index of expertise--the fluency that comes with practice.

- Give homework.

  The trainees should be sent back to their base of operations with an injunction to carry out the new technology as soon as possible. As little time as possible should elapse before the trainee puts the newly acquired skills to work (training provided too far in advance of the time that the trainee can use his/her newly acquired skills may be counterproductive in this regard).

Training is a continuous process. Both communication skills and technical knowledge learned in initial training sessions should be reinforced by technical backstopping and positive supervision--helping the worker to perform more effectively in contrast to simply "counting numbers" or criticizing failure to reach established norms. The initial training should also be reinforced through regularly scheduled in-service training courses and events as outlined in Part One, Section IIIE.

H. Monitoring progress

Careful monitoring of the communication support program is necessary to assure that it:

- remains on target;
- contributes fully and effectively to achievement of project purposes and objectives;
- takes advantage of new or unanticipated opportunities to increase the impact of communication interventions; and
- Modifies and adjusts its communication strategies and channels, materials produced and dissemination methodologies to correct errors, strengthen weaknesses and improve quality as the need is revealed through pretesting, formative evaluation, feedback, and observations of project staff and other interested parties.

Monitoring and appropriate program revision are ongoing activities

throughout the year. Actions to correct or improve the program should be made whenever the need or opportunity is identified through any of the mechanisms indicated above.

An annual in-depth assessment of progress and performance of the agricultural communication support program is also desirable. That assessment should provide the basis for planning and reprogramming for the coming year, and for any reallocations of resources that may be needed.

Procedures for ongoing monitoring and annual assessments are suggested in Part One, Section IV.

I. Summing Up

The axis around which agricultural communication must revolve is the farmer (his needs, attitudes, perceptions, and behavior) --hence, the need for behavioral studies. But more is required to develop and implement a viable communication strategy.

The communication strategy must be comprehensive, combining detailed understanding of the change to be promoted with understanding of its costs and benefits as perceived by the farmer. It must encompass how the messages will be delivered and what consequences it may produce if it succeeds--or if it fails.

The approach must be balanced and complete, without emphasizing one element to the exclusion of another: farmer orientation; presence of conditions required to permit change; validity and appropriateness of the message content to be disseminated; transformation of information received from the source into a form suitable for the farmers, channel strategies, etc.

Techniques selected or developed for tracking the farmers' responses to communication programs so that mid-course correction can be made, and for transmitting information through the communication network, must be practical, reliable, affordable, and actionable. The messages must be simple, clear, relevant, and repeated several times in several ways if they are to be absorbed, understood and accepted.

Communication cannot be expected to solve problems or transfer technology by itself. As part of an overall coherent program for agricultural improvement, however, communication has an important role. The extent to which it succeeds in fulfilling that role will be determined principally by the relevance and adequacy of the communication strategy through which it is applied.

Fifteen important characteristics of successful communication strategies are identified in the next chapter.

VI. Characteristics of Successful Communication Strategies

The six projects reviewed in Part Three (available in a separate volume) have one vitally important thing in common, although they vary widely in location, content, organization, target audience, and specific project objectives. (Two were in Latin America, two in Africa, one in Asia, and one had locations in both Latin America and Africa. Three were specific to agriculture and one each to literacy/basic education, health and integrated rural development).

The importance of appropriate use of communication methodologies and strategies as an integral part of the program was recognized in all, and strong communication components were built into each.

The collective experience of these projects provides valuable lessons concerning the characteristics of successful communication strategies that are applicable to technology transfer and other agricultural development projects. Fifteen of the more important ones are:

- Communication support can be effective only if the necessary conditions for change are present or can be arranged--such as available appropriate technology, required inputs, markets, appropriate price policies, etc.; the specifics will depend upon the characteristics of the change desired. (See Section III above, and Part One, Section II.)

- Specification of clear behavioral objectives is the first essential step for developing an appropriate communication strategy. (See Section VD above, and Part One, Sections II and IIIC.)

- Developmental investigation is required to determine the characteristics of the target audience to ensure that messages, media and presentations are appropriate and acceptable to that audience. (See Section VB2 above, and Part One, Sections II and IIIB.)

- Seldom, if ever, can mass media replace staff in the field. Appropriately used, however, mass media can greatly increase field staff effectiveness and coverage of the target population, thus significantly increasing total program impact. (See Section VE above, and Part One, Sections II and IIIC.)

- Careful planning and implementation, done in concert with project managers and their staffs and with the

support of relevant authorities, is critical to the success of the communication system in supporting the total program. (See Section V above, and Part One, Sections II and III.)

- Frequent feedback from the target audience, systematically obtained and distributed promptly to all action levels, is essential to the success of both the communication system and the program as a whole in achieving the specified behavioral objectives. Since feedback is of little value unless it is used, willingness of project administrators and staff to modify, drop or add activities for which feedback reveals the need is essential. (See Sections VB2d and VF above, and Part One, Sections II and IIIC.)

- Messages and media presentations must be localized to adjust to local conditions and the needs and desires of the target population. (See Sections VB3 and VC above, and Part One, Section IIIC.)

- Seldom can the communication system meet all the demands placed upon it--priorities must be established and followed if the quality of the program is to be maintained. (See Section VE above, and Part One, Section IIIC.)

- The need for continuing job-oriented training and staff development cannot be overemphasized. Training of field staff as communicators is also critically important. (See Sections IVH and VG above, and Part One, Section IIIE).

- Multimedia communication support programs in which the various media are mutually reinforcing can significantly increase the impact of communication support. Under some circumstances, multimedia contact is essential. (See Section VE above, and Part One, Section IIIC).

- Effective communication cannot be achieved without cost. Decisions must be made as to the most appropriate distribution of resources among communication support and other components of the project. (See Part One, Section II, and Section VII below.)

- Special skills are required that must be either "bought" or "taught". (See Part One, Section IIIA.)

- Political support for the communication system is essential, both to obtain the needed resources and to avoid dilution of the communication effort by diverting resources for other purposes. (See Section VC above.)

- Unless communication staff are fully involved in the total program planning process, there is serious risk that the communication system will become simply a service unit that responds in an ad hoc manner to requests for production of this or that material. If that occurs, there may be a productive media production unit; but there will be no viable communication support program. (See Part One, Sections II and III.)

- Close coordination within the communication component and between communication and other project components and collaborating institutions, and careful monitoring of activities and progress, are essential to effective communication support. (See Sections IIIA, IVG, VF, and VI above, and Part One, Sections II, III, and IV.)

Not all of these factors were handled adequately by all projects reviewed. Lessons learned from their weaknesses are equally as important as those learned from their successes.

These fifteen characteristics have been addressed and applied in discussing agricultural communication in the context of agricultural development programs in this volume, and in the guidelines for incorporating communication strategies into agricultural development program presented in Part One. In addition, relevant principles, concepts and procedures from other disciplines such as behavioral science, social marketing and instructional design have been grafted onto the agricultural framework to increase the effectiveness of communication strategies and to assure that they are farmer-oriented. Also, the potentially important roles of private and public sector firms and institutions in technology transfer programs have been highlighted.

VII. Costs, Benefits and Cost Effectiveness

Quantitative evaluation of the impact of any single communication support program component is difficult due to the interrelation and mutual reinforcement of media groups and methodologies as discussed in Section VE above. The Basic Village Education Project in Guatemala (reviewed in Part Three, Section III) provides a concrete example of this problem.

The Basic Village Education Project (BVE) was a tightly controlled experiment with discrete communication "treatments" (see Part Three, Section III, for a description of the treatments). Although every conceivable effort was made to formulate treatments that would permit determination of the specific and independent effect of each, the feedback provided by monitors and agronomists tended to make the treatments interdependent. As stated by the project evaluators (University of South Florida 1977),

> The extra-experimental roles of the agronomist and monitor compounded the issue of independence of treatments. Through interpersonal contact and observation in the monitor and agronomist areas, feedback was provided to all treatment areas. It seems clear that the creation of such a powerful message development and feedback system resulted in the specific media being of less importance, and therefore not creating change independent of the message.
>
> The agronomist and monitor are necessary for message development and feedback, as well as for interpersonal contact. Their interaction with the message system makes the radio a quasi-personal mode of communication.
>
> In summary, radio is a highly effective change medium when used in combination with a developed message preparation and feedback system. A message presentation system requires feedback from content specialists in regular contact with the target population.

Costs and cost effectiveness associated with the use of various media and media combinations are more amenable to assessment and have been determined in a number of projects, of which two examples are cited below.

As part of their cost-benefit analysis of the BVE project, Klees and Wells (1978) estimated the cost per farmer listening hour for an expanded program in southeastern Guatemala to be $0.03 for radio (assuming that 50 percent of the farmers listened), $0.25 for a radio-monitor combination, and $0.38 to $0.51 for a radio-monitor-agronomist combination. (The "monitor" in the

BVE project was a local person employed and trained by the project who worked with farmers in his own and three or four adjoining villages.) They concluded that annual generated benefits for the region of about $4.25, $11.50 and $16.00 per hectare, respectively, would be sufficient to cover both program and farmer costs for each of these combinations (using a slightly modified radio-monitor-agronomist system, which BVE experience appeared to justify). For purposes of comparison, annual generated benefits per hectare required for a traditional extension service would be approximately equal to those of the most intensive BVE treatment.

In Malawi, Perraton, Jamison and Orivel (1983) studied the use of mass media for agricultural extension (reviewed in Part Three, Section V). They found that it cost "about $21 to arrange a single contact between an extension agent and a farmer; about $4-5 a day for a farmer to attend a training centre; about $0.17 per farmer contact hour when a farmer sees one of the Branch's [Extension Aids Branch] mobile films; and about $0.004 per listener hour for radio."

Results of studies such as those just cited indicate clearly that the judicious use of communication support through radio and other channels can be highly cost effective and that only modest gains in production (or other desired benefits) are required to justify their use.

Measurement of benefits derived from extension (much less those from a specific communication methodology) has proved to be difficult. Attempts made to determine cost-benefit relationships have been constrained by the interdependence of media and communication methodologies pointed out above, the limited time frame of most projects, and factors external to the project that influence change.

Hornik (1982) suggested from a study of communication in agriculture that a useful study of effects of extension on productivity should: 1) introduce controls for third variables; 2) allow estimation of a rate of return to extension outlays; 3) take into account probable extension effects extending beyond contacted farmers; and 4) respect effects of time lag. He was unable to identify a single study which fulfilled all of these conditions. Orivel (1983) concluded that the diagnosis reached by evaluators of the internal effectiveness of extension services is excessively critical, and that evaluators of external efficiency have shown much more positive results.

Klees and Wells (1978) were forced to use a series of assumptions and several levels of anticipated benefits in making an economic analysis of BVE in Guatemala. (The project's time frame--only two full years of operation in each BVE experimental area--was less than the three years usually considered to be about the minimum for achieving large scale adoption of improved agricultural

115

technologies and practices and too short for measurement of the long term benefits expected to accrue.) Based on those assumptions, they concluded that "most BVE treatments, under most circumstances encountered in the experiment, have the potential to yield substantial economic returns to both the farmer and society as a whole."

Most of the BVE alternatives included in the Klees and Wells analysis showed projected rates of return greater than 25 percent. Projected rates of return for the radio-monitor and monitor-only treatments in the Highlands under the lowest benefit assumption, and for the radio-monitor-agronomist combination under the intermediate benefit assumption, ranged from 8 to 25 percent. Only the radio-monitor-agronomist treatment in the Guatemalan Highlands under the lowest benefit assumption showed a negative rate of return.

To summarize to this point, quantitative evaluation of the impact of a single media or media group in a multimedia communication support program is difficult due to the interrelation and reinforcement of the various media employed. Cost effectiveness is more amenable to assessment, and cost effectiveness studies have shown that judicious use of communication channels can be highly cost effective. Although it can be shown (as in the BVE example cited above) that only modest generated benefits are required to justify the investment in an effective communication support program, measurement of benefits actually derived has been exceedingly difficult in most projects due to their limited implementation periods and factors external to the project that influence change.

The magnitude and nature of communication-related resources needed to establish and maintain an effective communication support program in an agricultural project will vary greatly, depending upon the scope of the project, its objectives, the size and diversity of the agriculture and farmers in its areas of action, and existing host country expertise and other resources that can be mobilized. Therefore, it is not possible to construct a "model" budget that would be meaningful. Examples of communication-related costs incurred by a few projects or estimated for planned projects may be helpful, however, for providing a sense of the order of magnitude of likely resource needs.

Guatemala. The total cost of the BVE experimental project cited above and reviewed in Part Three, Section III, was approximately $2.9 million (dollars plus local currency dollar equivalents) over the period 1973-1978, with approximately 75 percent provided by the U.S. government and the remainder by the Guatemalan government. The major cost item, about 90 percent of the total, was for personnel expenses. Expenditures on research and related overhead constituted 35-40 percent of the total U.S. government contribution. The above costs do not include those incurred by farmers, primarily for time lost from work due to participation

114

in the program and batteries for their transistor radios. (Klees and Wells 1978).

Malawi. Perraton, Jamison and Orivel (1983), from their study of the use of mass media for agricultural extension (cited above and reviewed in Part Three, Section V), reported annual agricultural information service costs (expressed in U.S. dollars) as follows:

		Total	Per farm family[1]	% of total
1.	Agricultural extension	4,970,000	5.230	77.9
2.	Farmer training centre (Residential)	517,000	0.544	8.1
3.	Farmer training centre (Day)	270,000	0.284	4.2
4.	Radio (Extension Aids Branch[2])	265,000	0.279	4.2
5.	Mobile vans--movie (Extension Aids Branch)	209,000	0.220	3.3
6.	Mobile vans--puppet (Extension Aids Branch)	81,000	0.085	1.3
7.	Printed materials (Extension Aids Branch)	71,000	0.075	1.1
	TOTAL	6,383,000	6.719	100.0

1 Assuming 950,000 farmers.

2 The Extension Aids Branch is the communication support unit of the Ministry of Agriculture.

In 1985, Ray (1985) estimated the costs to equip one regional agricultural communication unit (Malawi is divided into eight agricultural development divisions) to meet minimal needs for providing effective communication support to the region's extension program at approximately $36,000 (includes equipment only; no other facilities, staff or operating expenses).

Honduras. In the process of analyzing the agricultural communication situation and developing recommendations for improving the communication support provided to extension in Honduras, Ray (1984)

made highly preliminary cost projections of resource requirements for establishing and operating one central and seven regional agricultural communication and public relation units. Included in those estimates were communication-related requirements for staff, office furnishings, equipment, mobility (vehicles), materials and supplies, travel and transportation, equipment maintenance and repair, purchased air time, and a contingency. They did not include costs of facilities, staff training, or extension activities normally included in the extension budget. Estimated costs were projected for three levels of capability--that which was considered to be optimal, an intermediate level, and that considered to be minimal for providing effective multimedia communication support. Those highly preliminary cost projections were approximately as follows (expressed as U.S. dollars):

	Estimated costs	
	Capital	Recurrent (annual)
Central unit		
Optimal	410,000	565,000
Intermediate	325,000	420,000
Minimal	275,000	320,000
Total for seven regional units [1]		
Optimal	430,000	930,000
Intermediate	285,000	665,000
Minimal	220,000	525,000

[1] To cover all regions of Honduras presently served by extension.

The examples of costs, cost effectiveness and costs in relation to benefits cited above can provide only very general guidance in planning and implementing strong communication support due to variations in need and existing resources.

It may be noted, for example, that the estimated equipment costs for a regional communication unit in Malawi are significantly lower than for Honduras. Both are based on the assumptions that it will be necessary to provide in-house capacity for virtually all local materials production, that few equipment items are presently available to the regional units, and that major production--in terms of volume or sophistication--will be done by a central unit. If it is possible to use existing outside facilities and/or other resources or to make multisector use of the facilities, resource needs will vary accordingly.

With respect to technology, if a breakthrough occurs or price policies are changed to provide strong incentives for production of a given crop, adoption may proceed and major benefits accrue much more rapidly than projected. If natural disaster or severe economic stress occur, there may be at least temporary retrogression in the adoption and sustained use of improved technologies with the result that the communication support program will have no visible positive impact during the affected period.

For such reasons, the more productive approach for determining the communication support most appropriate for a given agricultural program, within the resource limitations of the project, will be to consider it as a system in which multiple communication media and methodologies are employed as an integral part of the project in a manner to provide maximum reinforcement. Account must be taken of: 1) objectives of the project; 2) characteristics of the information to be disseminated; 3) characteristics of the target audience; 4) characteristics of the media available for use; and 5) relative costs of alternative communication components that could conceivably be used to provide effective communication support.

VIII. Relevant References

AED. 1973. Basic Village Education Project, Guatemala: Project Implementation Plan. Academy for Educational Development. Washington, D.C.

AED. 1975. The Basic Village Education Project (Programa de Educacion Basica Rural), Guatemala: The setting and the people. Academy for Educational Development. Washington, D.C.

AED. 1975. The Basic Village Education Project (Programa de Educacion Basica Rural), Guatemala. Academy for Educational Development. Washington, D.C.

AED. 1977. The Basic Village Education Project, Guatemala: Oriente region combined report, 1973-1976. Academy for Educational Development. Washington, D.C.

AED. 1978. The Basic Village Education Project: Final report. Academy for Educational Development. Washington, D.C.

Agency for International Development. 1983. Is AID doing enough and the right things to promote diffusion/extension of existing agricultural technology? Unpublished AID Issues Paper. Washington, D.C.

Arndt, J. 1968. A test of the two-step flow in the diffusion of a new product. Journalism Quarterly, 45:457-465.

Banerjee, Sumanta. 1977. Audio cassettes: The user medium. UNESCO. Paris.

Benor, Daniel, and James Q. Harrison. 1977. Agricultural extension; the training and visit system. World Bank, Washington, D.C.

Benor, D. 1984. T&V: Putting intentions into practice. INTERPAKS Interchange, 1 (No. 2).

Booth, Elizabeth Mills, and Mark Rasmuson. 1984. The role of formative evaluation in the Mass Media and Health Practices Project. Mass Media and Health Practices Field Note 11. Academy for Educational Development. Washington, D.C.

Cartwright, D. 1949. Some principles of mass persuasion. Human Relations, 2:253-267.

Clearinghouse on Development Communication. 1982. Project Profiles. Academy for Educational Development. Washington, D.C.

Coombs, Philip H., and Manzoor Ahmed. 1974. Attacking Rural Poverty: How non-formal education can help. Johns Hopkins University Press. Baltimore.

Cutler, M. 1982. Using radio to teach language arts. Development Communication Report, No. 37.

de Jesus, Edilberto C., and Don Andres Soriano. 1978. Masagana 99: Davao del Sur (A). Asian Institute of Management.

Foote, Dennis R., Carl Kendall, Maria del Carmen Miranda and Peter Spain. 1984. After twelve months of broadcasting; a status report on the project in Honduras and the Gambia (Mass Media and Health Practices Project). Stanford University.

Fox, K. F. A., and P. Kotler. 1980. The marketing of social causes: The first 10 years. Journal of Marketing, Fall:24-33.

Fraser, C. 1983. Communication problems. Agricultural Information Development Bulletin, 5 (No. 4):2-8.

Frost, J.M. (Ed.) 1983. World Radio and TV Handbook. Billboard Publication, Inc. New York.

Funes, Santiago. 1984. PRODERITH rural communication system: Communication in the integrated rural development process. FAO/World Bank. Mexico.

Hornik, Robert. 1980. Communication as complement in development. Journal of Communication. 30 (No. 2):10-24.

Hornik, Robert C. 1982. Communication and agriculture. Institute for Communication Research, Stanford University and Annenburg School of Communications, University of Pennsylvania.

International Minerals & Chemical Corporation. 1974 (?). The case study of a food producing success. One in a series of the IMC action program library. IMC. Quezon City, The Philippines.

Jaleco, Rodney J. 1978 (?). Food sufficiency highlights breakthrough in Philippine agriculture. Accent. IV:11. Inter-Communication Publishers, Inc. Manila, The Philippines.

Jamison, Dean T., and Emile C. McAnany. 1979. Radio for Education and Development. Sage. Beverly Hills.

Johnston, Bruce F., and William C. Clark. 1982. Redesigning rural development; a strategic perspective. The Johns Hopkins University Press. Baltimore.

Klees, Steven, and Stuart Wells. 1978. Cost-benefit analysis of non-formal educational techniques for agricultural development: a case study of the Basic Village Education project in Guatemala. Academy for Educational Development. Washington, D.C.

Kotler, P., and G. Zaltman. 1971. Social marketing: An approach to planned social change. Journal of Marketing, 35 (July):3-12.

Lionberger, Herbert F., and Paul H. Gwin. 1982. Communication Strategies: A Guide for Agricultural Change Agents. The Interstate Printers and Publishers. Danville, Illinois.

Lynch, Frank, and S.J. and Jose V. Barrameda, Jr. 1974. The M99 delivery system: How well does it work in Camarines Sur? SSRJ Research Report Series, No. 3.

McAnany, Emile. 1973. Radio's role in development: Five strategies of use. Clearinghouse on Development Communication. Washington, D.C.

Merrick, Jill. 1981. Masagana 99: Promoting a Miracle; an agricultural campaign in the Philippines. Academy for Educational Development. Washington, D.C.

Meyer, Anthony J., C. H. Block, and D. C. E. Ferguson. 1983. Teaching mothers oral rehydration. Horizons, 2 (No. 4).

Meyer, Anthony J. 1985. Communication for extension: Developing country experiences. In Agricultural Communicators in Education Quarterly, 68:1 (Jan-Mar). Reston, Va.

Ministry of Agriculture. 1978. Masagana 99 rice culture: 16 steps; irrigated transplanted. Agricultural information Division. Quezon City, The Philippines.

Ministry of Food and Agriculture. 1959. Report on India's food crisis and steps to meet it. Government of India, New Delhi.

Moris, Jon. 1983. Reforming agricultural extension and research services in Africa. ODI Agricultural Administration Network Discussion Paper 11. London.

Nesman, Edgar G., Thomas A. Rich, Sara G. Rivers. 1978. The Basic Village Education Project. Development Communication Report, No. 22. Academy for Educational Development. Washington, D.C.

Orivel, Francois. 1983. The impact of agricultural extension; a review of the literature. Basic Education and Agricultural Extension: Costs, Effects, and Alternatives. World Bank Staff Working Paper Number 564. Washington, D.C.

Oxenham, J., and R. Chambers. 1978. Organizing education and training for rural development: problems and challenges. Paris IIEP.

Parlato, Ronald, Margaret Burns Parlato and Bonnie J. Cain. 1977. The use of popular graphic media in development support communications programs: A survey of fotonovelas and comic books. Agency for International Development. Washington, D.C.

Parlato, Ronald, et al. 1980. Fotonovelas and comic books: The use of popular graphic media in development. U.S. Agency for International Development. Washington, D.C.

Perraton, Hilary, Dean F. Jamison and Francois Orivel. 1983. Mass media for agricultural extension in Malawi. Basic Education and Agricultural Extension: Costs, Effects, and Alternatives. World Bank Staff Working Paper Number 564. Washington, D.C.

Population Information Program. 1980. Social marketing: Does it work?. Population Reports, 8, J393-J434.

Potts, Jim, and Tony Troughear. June 1977. "On the road again--another look at mobile cinema." Educational Broadcasting International. 58-63.

Ranganath, H. K. 1980. Using folk entertainments to promote national development. UNESCO. Paris.

Rasmuson, Mark. 1984. PRITECH Technical Update: Mass Media and Health Practices Project. Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1974. The first decade of the Intensive Agricultural District Program. Ford Foundation, New Delhi, India.

Ray, H., T. Rich, E. Nesman, and M. Dardon. 1974. The role of modern communication technology in strategies to accelerate rural development. Presented at Conference on Non-Formal Education: New Strategies for Developing an Old Resource. Michigan State University.

Ray, Howard E. 1978. The Basic Village Education Project, Guatemala. Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1978. The Basic Village Education educational programming system (Guatemala). Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1978. Planning and implementation of the Basic Village Education Project (Guatemala). Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1978. Exogenous factors which affected Basic Village Education operations and performance (Guatemala). Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1978. Implementation and management issues faced by Basic Village Education (Guatemala). Academy for Educational Development. Washington, D.C.

Ray, Howard E., Jose Luis Monterroso, Jerrold C. Arnold, and Jaime A. Carrera. 1978. The Basic Village Education concept of agricultural programming. Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1984. Agricultural communications in Honduras: Analysis and recommendations. Consultant's report to USAID. Academy for Educational Development. Washington, D.C.

Ray, Howard E. 1985. Communication strategies to accelerate agricultural technology transfer. Presented at National Conference on International Programs and Agricultural Communication: Partners for Agricultural Development. St. Louis, Mo.

Ray, Howard E. 1985. Extension component: Malawi Agricultural Research and Extension Project (Draft). Consultant's report as member of AID Project Paper Team. Lilongwe, Malawi.

Rich, Thomas A., and Edgar G. Nesman. 1974. Basic Village Education in Guatemala: Evaluation of an experiment in non-formal education, report of first year's progress. University of South Florida. Tampa.

Rich, Thomas A., Edgar G. Nesman, Richard J. Anderson, Sara G. Rivers, and Dennis J. Archambeau. 1978. The Basic Village Education Project, Guatemala: Occidente region final report (1974-1977), evaluation component. University of South Florida. Tampa.

Rogers, Everett M., and F. F. Shoemaker. 1971. Communication of innovations: A cross-cultural approach. The Free Press. New York.

Rogers, Everett M. 1972. Communication strategies for agricultural development. Academy for Educational Development. Washington D.C.

Ruthernberg, H. 1973. Types of organization in agriculture production development. Zeitschrift fur Auslandische Landwirtschaft, Jahrgang 12 Heft 3/4.

Smith, William A. 1983 (?). Mass Media and Health Practices implementation: Beyond campaigns; a new approach to the media and education. Academy for Educational Development. Washington, D.C.

Smith, William A. 1983. Promoting ORT: Integrating mass media, print and visual aids. Diarrhea Dialogue.

Smith, William A. 1985. Personal communication.

Straub, Gordon A. 1978. The use of radio in Basic Village Education (Guatemala). Academy for Educational Development. Washington D.C.

Straub, Gordon A. 1978. The Basic Village Education feedback system. Academy for Educational Development. Washington, D.C.

Straub, Gordon A. 1978. The Basic Village Education monitor (Guatemala). Academy for Educational Development. Washington, D.C.

Straub, Gordon A. 1978. The Basic Village Education field agronomist (Guatemala). Academy for Educational Development. Washington, D.C.

Touchette, Paul E., Clifford Block, and William A. Smith. 1983. Using behavioral analysis in planning a program to alter health practices in rural Honduras. Presented at National Council on International Health Conference, Washington, D.C.

University of South Florida. 1977. The Basic Village Education project, Oriente region, combined report. Academy for Educational Development. Washington, D.C.

Weaks, Daniel. 1976. The photonovel: A tool for development. Program and Training Journal Manual, Series No. 4. ACTION. Peace Corps. Washington, D.C.

White, R. A. 1983. The Latin American association for radiophone education. Media in Education and Development, Sept:122-128.

125

Wolff, Laurence. 1983. The Lesotho Distance Teaching Centre. Basic Education and Agricultural Extension: Costs, Effects, and Alternatives. World Bank Staff Working Paper Number 564. Washington, D.C.

World Bank. 1977. Radio for education and development: case studies. World Bank Staff Working Paper No. 266. 2 vols. World Bank. Washington, D.C.

World Bank. 1981. The educational use of mass media. World Bank Staff Working Paper No. 491. World Bank. Washington, D.C.

Zandstra, Hubert, Kenneth Swanberg, Carlos Zulberti, and Barry Nestel. 1979. Caqueza: Living rural development. International Development Research Centre. Ottawa, Canada.

Step by step suggestions for planning and implementing effective communication support, based on the principles and concepts presented in this volume, are offered in Part One, Guidelines for incorporating communication strategies into agricultural development programs. Four extension models are discussed and six projects with strong communication components are reviewed in Part Three, Extension and Communication Models. Each of these parts is available in a separate volume.

INCORPORATING COMMUNICATION STRATEGIES
into
AGRICULTURAL DEVELOPMENT PROGRAMS

PART THREE

EXTENSION AND COMMUNICATION MODELS

By

Howard E. Ray, PhD
Vice President and Director
Agricultural Sciences and Technology
Acader. / for Educational Development

OCTOBER 1985

Prepared under Contracts No. AID/ta-C-1473, and No. AID/DPE-1109-C-00-4081-00, Communication Support Project, by the Academy for Educational Development and the Institute for International Research, funded by the Office of Education of the Bureau for Science and Technology of the United States Agency for International Development.

Foreword

Communication, the transfer of ideas and knowledge, is vital to human association. We all use communication skills every day as we go about our daily business. At every level--personal, professional, business, community, national, international--the degree of success enjoyed is dependent in large part upon the ability to communicate effectively.

In agriculture, some of the problems encountered in transferring improved agricultural technologies from research to the farmer in the developing world offer a prime example of the consequences of not communicating effectively. Obviously, communication alone cannot solve all of the problems associated with technology or information transfer. When effective communication support is incorporated into projects that have the other ingredients required for success, however, it has high potential for increasing impact.

Today, the planner has multiple resources upon which to draw in designing communication support programs. These include not only newly developed communication technologies and experience gained in the use of communication in agriculture, but also communication experience from other sectors such as health and education, and important concepts and procedures from other disciplines such as behavioral science and social marketing.

The objective of this study has been to synthesize such technologies, experience, and concepts adapted from other disciplines into practical guidelines for designing and implementing appropriate, audience-oriented communication support programs in agricultural development projects.

The guidelines are presented in Part One of this paper, and the conceptual framework on which they are based is developed in Part Two. Reviews of six projects with strong communication components (two from agriculture and one each from literacy/basic education, health and integrated rural development) are included in Part Three.

Acknowledgments

This study was made possible by funding provided through the Small Activities Project of the Bureau for Science and Technology of the United States Agency for International Development under the guidance of Dr. Nyle C. Brady, Senior Assistant Administrator. The author gratefully acknowledges and expresses his sincere appreciation for this support.

The excellent guidance and suggestions received from a committee comprised of representatives from the Education, Agriculture and Rural Development Offices of the Science and Technology Bureau and from the Latin America and Caribbean Bureau are gratefully acknowledged. The long hours that they spent in reviewing early drafts of the paper and in meeting with the author helped greatly to sharpen the focus and improve the quality of the paper, and were very sincerely appreciated.

Although the list of AID staff who contributed to the paper is too long to enumerate, the author wishes to give particular thanks to Anthony Meyer who was always available for consultation and who provided invaluable guidance and suggestions throughout the study, to John Eriksson for his early encouragement and continued support of the study, and to Kenneth Swanberg, Philip Church, Ralph Cummings, Jr., Clifford Block and others who contributed so generously of their time and reference libraries.

The author is indebted to his colleagues at the Academy for Educational Development for their support and contributions. Particular thanks are due to Bill Smith, who contributed substantively to the manuscript and reviewed each of the several drafts, to Judy Brace who assisted in locating references and also reviewed the drafts, and to Bette Booth and Mark Rasmuson who contributed materials that were later incorporated into the paper. The editing assistance of Minerva Neiditz is also acknowledged.

Finally, the author expresses his deepest appreciation to his wife for the endless hours she spent researching, proofreading, preparing figures, checking and rechecking the manuscript.

To all of these, and the numerous others who contributed to the study and paper, the author expresses his sincerest appreciation.

October 28, 1985

H.E.R.

130

EXECUTIVE SUMMARY

Projects such as Basic Village Education in Guatemala and Masagana 99 in the Philippines have demonstrated that effective communication support can increase the impact of agricultural development programs. It is encouraging that interest in such communication support is growing, and that viable communication components are being incorporated increasingly into agricultural projects around the world.

New approaches will be required to improve the performance of technology transfer and other agricultural development projects. In addition to taking advantage of the body of experience gained from successful agricultural projects and newly developed communication technologies and methodologies, concepts and procedures from behavioral science and social marketing need to be adapted and used. The farming systems concept will also have relevance. Effective communication support must be a key element.

No comprehensive communication model exists that applies to all projects and programs. Nevertheless, current experience is sufficient to permit synthesis into practical guidelines for incorporating effective communication support into agricultural development projects.

A set of guidelines for planning, implementing and monitoring appropriate communication support is presented in Part One. First, eight critical planning steps are identified and discussed: 1) determining and testing relevant assumptions concerning the project as a whole; 2) establishing an institutional base and "home" for the communication component; 3) identifying information needs; 4) determining existing communication resources; 5) developing a ten-point communication strategy; 6) estimating communication-related resource needs; 7) integrating the communication strategy into the total project plan; and 8) interpreting what is implied by a "final" communication strategy.

Communication support implementation guidelines include: 1) communication component organization, staffing and management; 2) developmental investigation; 3) educational programming (including feedback); 4) pretesting and formative evaluation; 5) staff training and support; and 6) interinstitutional coordination and networking. Guidelines for monitoring progress are presented in the final chapter of Part One.

The paper repeatedly emphasizes that the communication component is a supporting element of the agricultural project that can be effective only to the extent that it functions as an integral part of the total program. Critical linkage points are identified at each stage in the planning and implementation processes, and the potentially important roles of the private sector and other public section institutions are highlighted.

The concepts, principles and processes underlying the guidelines are presented in Part Two, "Agricultural communication in the context of agricultural development programs." After establishing the rationale for incorporating effective communication support into agricultural projects and restating the communication problem to be addressed, communication is discussed in relation to other program components--including the non-communication requirements for successful communication support programs. Issues related to communication functions and strategies are then addressed, with emphasis on:

- The need for the communication support program to have a farmer orientation which takes into consideration the characteristics of (and variability in) the project's target population/s.

- Application of behavioral science and social marketing techniques grafted onto the agricultural framework for communication-related investigations, pretesting and formative evaluation.

- Characteristics of major broadcast, interpersonal, and graphic/print media within the context of media networking and media "channel strategies."

- Techniques for improving staff training, adapted in part from other disciplines such as behavioral science.

Part Two closes with a summary of characteristics of successful communication strategies, and a limited discussion on the costs, benefits and cost effectiveness of communication support.

Issues related to the need for, relevance and performance of extension in the LDCs since World War II are addressed briefly in Part Three, followed by discussion of four conceptual extension models--including a suggested "hybrid" extension model to meet today's needs. The urgent need to involve the private sector productively and effectively in technology transfer programs is again stressed. Six projects from Latin America, Africa and Asia that have had strong communication components are then reviewed. Attention is directed specifically to operational systems and processes used in these projects to enable planners to take maximum advantage of such experiences in designing effective communication support into new projects.

The three parts of the paper are bound separately and cross-referenced extensively for convenience in use. Taken as a whole, the three parts provide: a conceptual framework for incorporating appropriate communication strategies into agricultural development projects; guidelines for planning, implementing and monitoring communication strategies and support programs; and examples of projects on whose experiences planners can draw in designing appropriate communication support into existing or new projects.

PART THREE

EXTENSION AND COMMUNICATION MODELS

Table of Contents

		Page
	Foreword and Acknowledgments	
	EXECUTIVE SUMMARY	
I	The Case for Extension	III- 3
II.	Conceptual Models	III- 9
	A. The "directive" extension model	III-10
	B. The "participatory" extension model	III-10
	C. The "contractual" extension model	III-11
	D. A "hybrid" extension model for today	III-12
III.	Basic Village Education in Guatemala	III-15
IV.	Masagana 99 in the Philippines	III-35
V.	Mass Media for Agricultural Extension in Malawi	III-43
VI.	Distance Learning in Lesotho	III-53
VII.	Communication System for Rural Development in Mexico	III-61
VIII.	Mass Media and Health Practices in Latin America and Africa	III-67
IX.	Summary of Lessons Learned about Communication Support	III-71

Figures

1.	The BVE educational programming system.	III-20
2.	The BVE annual calendar of agricultural messages for 1976 programming in the Occidente region of Guatemala.	III-22
3.	PRODERITH's rural communication system.	III-63

AVAILABLE IN SEPARATE VOLUMES

PART ONE

GUIDELINES FOR INCORPORATING COMMUNICATION STRATEGIES INTO AGRICULTURAL DEVELOPMENT PROGRAMS

I. The Communication Component

II. Planning Effective Communication Support

III. Implementing Effective Communication Support

IV. Monitoring Progress

PART TWO

AGRICULTURAL COMMUNICATION IN THE CONTEXT OF AGRICULTURAL DEVELOPMENT PROGRAMS

I. The Rationale

II. The Problem

III. Communication in Relation to Other Program Components

IV. Communication and Communicator Functions

V. Communication Strategies

VI. Characteristics of Successful Communication Strategies

VII. Costs, Benefits and Cost Effectiveness

VIII. Relevant References

PART THREE

EXTENSION AND COMMUNICATION MODELS

Extension effectiveness in transferring improved agricultural technologies from research to the farmer in the Third World has been generally disappointing. As a result, many have become disillusioned with extension as a viable technology diffusion vehicle. In reviewing developing country extension performance, for example, Johnston and Clark (1982) concluded ". . .that conventional model has not worked at all well in developing countries."

Some observers believe that such conclusions are too harsh; and projects/programs such as those reviewed in Sections III-VIII provide notable exceptions to that widely accepted perception. All of these projects had one notable characteristic in common. They recognized the need for appropriate use of communication methodologies and strategies as an integral part of the program, and strong communication components were built into each.

Issues related to LDC extension relevance and performance since World War II and four types of extension models are discussed briefly in Sections I and II below. The development of effective communication strategies and their integration into agricultural development projects, discussed in Parts One and Two of this paper (available in separate volumes), must proceed within this context.

Six projects/programs from Latin America, Africa and Asia are then reviewed, all of which used (and/or are using) current state of the art communication methodologies, media and skills extensively in support of the project's program. Of these, two are specific to agriculture, and one each to literacy/basic education, health, and integrated rural development. Consistent with the paper's primary objective to develop practical guidelines for incorporating communication strategies into agricultural development programs, attention is directed to operational systems and processes employed--and problems encountered--by these projects as well as to results obtained.

The body of experience gained through projects and programs such as the six reviewed--coupled with the use of newly available communication technologies and understandings, concepts adapted from other disciplines such as behavioral science and social marketing, and from farming systems approaches--provide an invaluable resource for designing and implementing projects in which extension will have the potential for becoming the earlier envisioned viable vehicle for technology transfer.

I. The Case for Extension

Extension institutions and programs exist in virtually every developing country. Yet, coverage of farm families is still entirely too limited, the effectiveness of extension as a viable technology diffusion agency has been seriously questioned, and returns on investments in extension are still not established. In view of this situation, hard questions such as the following are being asked:

- Is extension actually as ineffective as it may appear to be in many countries?
- Is there justification for continuing to support and strengthen extension in its present form?
- If not, can extension be reoriented, redirected, and transformed into a more viable force for technology transfer? How can this be accomplished?
- Do the root causes of disappointing extension performance lie within the extension concept, or have there been external factors that have limited its effectiveness?

These questions cannot be answered in depth in this paper. However, the brief discussion below (based on literature reviews and the author's own observations) offers some significant indicators for planning and implementing effective communication support for technology transfer projects.

The lack of rapid and consistent adoption by Third World farmers of improved technologies that could increase their production and profits demonstrates the need for extension or some other type of technology diffusion and transfer institution. Although widespread farmer adoption may occur with minimal benefit from organized extension activity in the occasional cases of spectacular technological breakthrough, this does not necessarily hold true for the more common case of technologies with more modest potential returns and more limited ranges of adaptation.

Zandstra, Swanberg, Zulberti and Nestel (1979) have documented the critical importance of field testing new technologies to determine where they are well adapted and appropriate, and how they can be introduced to and utilized by farmers to give profitable returns with minimum risk. Such field testing requires staff dispersed throughout a region, both to assist in the testing and to assure that adequate and accurate feedback gets back to the researchers that developed the technology. Although research must provide direction to and be intimately involved in this effort, the researcher cannot accomplish it alone.

136

Some farmers will learn about new technologies through serving as cooperators for field testing or observing such tests in progress, but many more will not. Some effective mechanism is needed to disseminate this information to all farmers.

Farmers need continuing assistance in learning how to apply new technologies (particularly complex technologies such as those which involve modifying farming systems) and in coping with problems that emerge as they are used. Although researchers can provide some such assistance, their primary job is research--they cannot provide that assistance on the scale needed. Researchers can and should, however, provide technical backstopping to an institution that has direct and continuing contact with those farmers.

Farmers also may need help in finding out where and how they can obtain the goods and services they need to take advantage of new technologies. In situations, common in the LDCs, in which the agricultural infrastructure is not yet well-developed, such "non-technological" factors must be taken into consideration; a mechanism is needed for coordinating farmer needs and interests with recommendations and the provision of needed goods and services.

Thus, the need for extension or other technology diffusion agency is well-established.

The next critical issue relates to extension effectiveness. In a recent review of the world literature on effectiveness of agricultural extension services, Orivel (1983) found that evaluators of the internal effectiveness of extension services--performance, coverage of farmers most in need, objectives--are generally critical and conclude that extension services are of little help to the agricultural sector as a whole (which supports the conclusions cited earlier). He argues, however, that this diagnosis may be excessively harsh as: evaluators often have irrelevant evaluation criteria; historically the situation has substantially improved; and evaluators of external efficiency (mainly economists) show much more positive results.

Similarly, Moris (1983) concluded from a reanalysis of the performance of extension focused particularly on Africa that, "agricultural extension has sometimes been a key ingredient in stimulating the transfer of technology." Thus, the conclusion that extension has not worked is not unanimous.

Nevertheless, the general concern about lack of LDC extension effectiveness in bringing about widespread transfer to the farmers of improved agricultural technologies is well-founded. Among the commonly encountered factors contributing to the problem are:

Conventional extension methods have relied heavily

on interpersonal communication channels using field extension agents. Even though the number of people reached this way can be increased through various mechanisms such as the "contact farmer" concept in the Training and Visit extension system, the number of agents is still seldom sufficient to cover an area adequately.

- Field extension agents and subject matter specialists are often inadequately trained, and salaries are low.

- Technical backstopping of extension agents in the field is deficient.

- Lack of effective coordination between research and extension is a common problem.

- The agricultural technologies recommended to farmers have not always been appropriate and well-adapted; and, in formulating them, insufficient consideration has been given to farmer attitudes, needs, desires, and constraints.

- Feedback from the field to extension, research, and the providers of goods and services needed by farmers is commonly erratic and inadequate.

- "Non-technological" constraints to adoption of new technologies (inputs, markets, credit, price policies, etc.) are too often not given sufficient attention in planning the extension program.

- Productivity of extension workers is often limited by lack of funds to provide mobility and other operational support.

- Audio-visual aids and various communication media have been used extensively; but their use has often been "add-on" and ad hoc in nature, rather than being integrated into the total extension program.

- Extension institutions and programs are typically bureaucratized to the point that they are permanently established and not readily amenable to rapid radical change.

This litany of problems, coupled with growing concern that many LDCs would find it difficult to sustain support to extension at even present levels if external assistance were to be completely withdrawn, could lead to the conclusion that extension in its present form should be abandoned. In the judgment of the author, such a conclusion would be erroneous; extension does have inherent

potential to become a viable and effective technology diffusion agency. To realize that potential, however, it will be necessary for extension to be reoriented and redirected; new and innovative approaches to the entire technology development and transfer process will be required.

The relevant question therefore becomes, "Under what conditions, and how, can extension realize its inherent potential as an effective vehicle for technology transfer?"

Of the changes needed, six major ones are identified below. The process of such change is already underway in a number of developing country projects and programs.

First, the extension program must be farmer-oriented; and the farmer must be and feel involved (see Part Two, Section VB).

Second, linkages and coordination between research and extension must be strengthened (this need is discussed in various sections of Part Two, and guidelines for action are suggested in Part One). On-farm testing to determine technology adaptation and farmer reactions is a key step in which joint research-extension involvement is critical.

Third, well-planned and appropriate multimedia communication strategies must be incorporated into the extension program (guidelines for accomplishing this are presented in Part One).

Fourth, coordination within the extension program, between extension and research, and among the farmers, extension, research and the providers of goods and services must be given high priority. Many potentially successful programs have not lived up to expectations due to lack of such coordination and lack of regular, uninterrupted flow of information among all involved in or impacting upon the program.

Fifth, constraints over which extension can have no control--land, agricultural infrastructure, government policies, etc.--must be taken into consideration in determining the technical content of the extension program. Extension can influence technology transfer only if such constraints can be alleviated; in some cases, extension may be able to contribute toward their alleviation.

Sixth, the reoriented, redirected and revitalized extension programs must be institutionalized. Competent staff must be placed and maintained in position, trained, and given experience during the revitalization process that will enable them to provide capable and imaginative leadership to extension programs in years to come. Governments must recognize the new roles and methods of extension, and provide budgetary and other support to maintain them. In some cases, extensive reorganization within

extension may be required.

Until the types of changes identified above are accepted and institutionalized, the likelihood that any improved extension program developed with external assistance will persist is not encouraging.

In addition to the improvements and strengthening required to make present extension services effective technology diffusion vehicles, another potentially important force for change needs to be incorporated into the total technology transfer effort.

The private sector and other relevant public sector institutions need to be directly involved and participate fully in the technology transfer thrust. Collectively, they usually have more people in the field than extension. The private sector typically has more flexibility in operation than the public sector, and it can provide additional effective channels for reaching and receiving feedback from the farmers.

It may sometimes be both more effective and more cost effective to turn over to private sector agencies or to an autonomous public sector entity a major portion of the responsibility for technology transfer. At the very least, their support should be enlisted, and their resources mobilized to work in collaboration with public sector extension to extend extension coverage and contribute to building and sustaining a more effective technology transfer program. Examples of institutions that could be so involved include banks, agribusiness firms, farmer associations, farmer cooperatives, private voluntary organizations, professional associations, educational institutions, and marketing organizations and agencies.

The potential is great!

To summarize, the need for extension or some other technology diffusion vehicle is real. Extension performance has been disappointing to date, although the basic extension concept is valid. Improvement will depend upon the introduction and institutionalization of new and innovative approaches to the entire technology development and transfer system. Some of the more important changes that will be required have been identified, and the process of change has started. It must be accelerated and extended throughout the developing world if extension is to meet the present day challenge to become a force for technology transfer that permits continued agricultural progress and development.

II. Conceptual Models

There is no extension model that is "best" for all countries or even for the same country at all stages in its development. Evolution of extension in the United States can serve as a case in point.

In the early years of U.S. extension, county agents worked with local people on a wide variety of agricultural problems, of which the dissemination of information about improved agricultural technologies and practices was only a part. A shift to more intensive emphasis on technology transfer came later as agricultural infrastructure and research programs became established.

Present day U.S. extension bears little resemblance to those early days. Farmers are well-educated and have direct access to new technological information through numerous channels. Infrastructure is well-developed and other institutions, including the agri-business sector, provide much of the technical information and many of the services formerly required from extension. In response to this evolving situation, although dissemination of technical information remains an important function, U.S. Extension Services have also moved into new program areas such as area and community development, work in urban areas, and more academically oriented types of instruction.

The typical developing country situation today resembles in some respects that of the United States during the early years of U.S. extension. Even though information dissemination is important, it is not in itself sufficient to bring about widespread technology transfer. In other respects, the typical developing country situation today is more complex, particularly with regard to socio-economic and equity issues.

All extension services have characteristics that cannot easily be fit into neat categories. Orivel (1983) has identified three underlying philosophies of extension projects, however, that can be used as the basis for conceptualizing three distinct types of extension--the first three "models" identified below. A fourth general model, which incorporates the types of approaches discussed in the foregoing section, is then offered as an alternative more nearly relevant to the needs of today.

The models identified below are oversimplified to highlight the dominant characteristics of each. Elements of all can be found in virtually every extension program. None is likely to fit any specific situation exactly.

A. The "Directive" Extension Model

Extension services based on this model typically employ "top down" methods imposed from above by politicians, planners, technocrats, and "leaders" who may set a number of "targets" to be achieved by the farmers. The program is frequently administered through a series of "schemes", each of which is directed toward persuading farmers to do whatever may be required to achieve one or a set of those targets.

Farmer participation in determining goals, objectives and what would be most desirable to meet their own needs is minimal in this model. In other words, the farmer is viewed as a passive recipient of information rather than an active participant. (See Part Two, Section VB, for insights concerning the implications of such an approach.)

An observation of the author from Central India in the 1960s illustrates how this approach can be counterproductive from the standpoint of both the farmer and the nation. Agricultural staff met with groups of farmers and village leaders in their district to determine how much fertilizer would be needed during the coming year. The target for the district that year under the government's fertilizer scheme was about 25 percent less than the farmers indicated they would use. District officials were unable to get the official target increased significantly; yet, by the end of the season, total fertilizer use in the district had slightly exceeded the agricultural staff's original estimate.

It is paradoxical that Benor and Harrison's "Training and Visit System" (1977), a major effort made in the seventies to revitalize agricultural extension services, embodies the most radical version of the directive system thus far (Orivel 1983). As pointed out by Johnston and Clark (1982), however, key features of the Benor approach have been the creation of organizational structures and institutional procedures to provide tighter linkages between research and extension and the identification and promotion of innovations that are feasible and worthwhile at the farm level. Also, the focus on selected "contact farmers" to assist in spreading new practices quickly to farmers in their communities offers potential for both obtaining a multiplier effect and developing mechanisms for obtaining regular feedback from the farmers. Thus, it would be more appropriate to term the Training and Visit System a <u>modified</u> directive model.

B. The "Participatory" Extension Model

No matter how well-intentioned they may be, it is unlikely that planners and technocrats can have sufficient familiarity with

the highly diverse agricultural needs, constraints and potentials in every region and sub-region in the country to enable them to design national programs appropriate for all farmers and all regions (as illustrated by the "fertilizer target" example above). Recognition of this problem has led to development of extension programs in which farmers are viewed as participants in decision-making, rather than as passive recipients.

Although some variation on the participatory model characterizes most extension programs undertaken in recent years, insufficient attention has been given to understanding the farmer--his attitudes, present farming enterprise, resource and other constraints, cultural and social characteristics, and economic situation. As a result, although such programs have benefited from farmer participation, most have still not become truly farmer-oriented in the sense discussed in Part Two, Section VB.

The large numbers of farmers, many of whom have very small holdings and live in areas in which communication and movement are difficult, present a major problem in implementing a participatory extension approach. Direct involvement of every farmer in decisions concerning extension program content could be achieved only at the sacrifice of other activities essential to the technology development and transfer process. Compromises must be made to assure effective farmer participation without jeopardizing the technology diffusion role of extension.

Oxenham and Chambers (1978) recognize that "representative" participation is frequently the only possible route. The term "representative" is key. For example, results obtained by a farmer with reasonably adequate resources may lead to erroneous conclusions about the feasibility of a given new technology for all farmers in an area. Similarly, the ability of the better educated farmer to understand and successfully apply what is written about a complex technology package does not necessarily mean that all farmers can do the same. Unless participation is truly representative, the problems specific to small farmers with limited resources may not be identified.

Techniques and research instruments appropriate for obtaining farmer inputs that are representative of the area are discussed in Part Two, Sections IVF and VB. Although representative farmer participation has been discussed to this point in relation to program development, the principle is equally important in evaluating program effectiveness and impact.

C. The "Contractual" Extension Model

The contractual concept of extension is manifested in various forms, all of which represent a major departure from conventional

143

public extension services in which all costs are borne by society as a whole.

As one variant, farmers contract with a development/extension agency to obtain technical assistance and market outlets in return for which the farmers agree to follow the agency's instructions. As cited by Orivel, Ruthenberg (1973) is inclined to recommend this approach, successful examples of which include a tea-growing project in Kenya and a tobacco-growing project in Tanzania.

A second variant is the practice in Sri Lanka and elsewhere of permitting animal production and health extension agents to charge farmers for their veterinary services.

In a third variant (of which the Taiwanese farmer associations have provided an example), farmer associations, cooperatives or similar organizations may employ their own extension staff to work directly with their members. In this variant, the primary public extension service point of contact with the farmers is through such organizations' extension staffs.

As a modification of the contractual model concept, the government may contract with a private sector organization to provide all extension services on its behalf.

The contractual model offers the opportunity for development of private sector involvement to assume at least a portion of the burden presently borne by public sector extension. For example, an appropriate combination of public and private sector extension, such as in the third variant above, could lead to more adequate coverage of the farming population and more effective service to the farmers. If properly oriented and managed, such an arrangement should also lead to greater farmer involvement and participation.

Under certain conditions, some variant of the contractual model may be the most viable solution to the extension "problem" in terms of both effectiveness and public sector costs. The decision must be situation-specific; it cannot be generalized. If this type of model is adopted, however, it must have the characteristics of the "hybrid" model discussed below if it is to serve the technology transfer needs of today.

D. A "Hybrid" Extension Model for Today

Elements of all of the models identified above need to be incorporated into a "hybrid" model to meet today's (and tomorrow's) needs. Farmer participation, as in the "participatory" model, is critically important. Yet, strong support and direction

from above are needed to mobilize resources effectively, and to achieve and maintain the degree of internal and interinstitutional coordination essential to a successful technology transfer program. And ways must be found to involve the private sector productively and effectively.

The structure and operational procedures of extension will vary from country to country, and sometimes within a country, depending upon existing institutions, situations, and opportunities. Whatever may be the form, however, extension appropriate for today and in the foreseeable future needs to:

- Be farmer-oriented. Extension must understand the farmer, and the farmer must be an active participant in the program rather than a passive recipient of information and instruction whose content and presentation are determined solely by others.

- Coordinate and collaborate closely with research in identification of problems, determination of adaptation and potential farmer acceptance of new technologies, and in development of the technical content of extension messages to be disseminated to the farmers.

- Collaborate with research in planning, establishing, conducting, and assessing the results of on-farm trials.

- Coordinate its educational and information programs with government and the providers of goods and services to assure that, for each technology recommended, the farmers will have access to required inputs, services and markets, and that economic incentives are sufficient to make its adoption attractive to them.

- Develop and maintain effective feedback systems and communication networks to facilitate the two-way flow of information between and among the farmers, research, extension, providers of goods and services, government, and other relevant public and private sector institutions.

- Incorporate viable communication strategies and support into the total extension program.

The last-named is the principal theme of this paper. A conceptual base for appropriate and systematic use of agricultural communication in agricultural development projects and programs is established in Part Two, and guidelines for planning and implementing effective communication support integrated into such programs are suggested in Part One. The experiences of projects/programs such as those reviewed in the sections which follow can provide guidance in determining how such communication support can best be achieved in practice.

III. Basic Village Education in Guatemala (BVE)

The Guatemalan Basic Village Education Project (BVE) is an example of the successful development and use of a communication system in support of a technology transfer program. The project's planning and operational systems and procedures are described in detail to enable planners to take maximum advantage of the BVE experience in designing effective communication support into new projects.

A. Overview
(From AED 1978)

The Basic Village Education Project was an experimental program of non-formal education, conducted in two contrasting cultural/agricultural regions of Guatemala, which did not require literacy for participation. Subsistence farmers, the majority of whom are illiterate, constituted the primary audience toward which BVE directed information to help them improve their crop production.

Radio was used alone and in combination with various other communication media to study the effectiveness and relative costs of selected media mixes potentially useful in development programs. Experimental programming was maintained for almost three years in one region and for two full years in the other.

Results of a rigorous evaluation of the BVE educational program indicated that measurable change occurred during the two year programming period. All BVE media combinations had measurable impact on knowledge about, attitudes toward and/or use of modern agricultural techniques. It appeared from those findings, however, that there was no single media combination that was most effective for all situations.

A longer experimental and follow-on period would have been required for precise estimates of long range benefits from BVE. Nevertheless, an economic analysis of the project indicated that most BVE treatments, under most circumstances encountered in the experiment, had the potential to yield substantial economic returns to both the farmer and society as a whole.

Elements of the BVE educational program considered most crucial to achievement of these positive results included:

- Systematic, detailed, relevant planning prior to program initiation, including collection of reliable and comprehensive baseline information.

- An integrated educational programming system for message development, materials production, message delivery and feedback.

- A programming philosophy focused on the farmer.

- A continuing program of staff development and reinforcement.

These same elements were considered to be those with the most significant implications for programs in other sectors and/or settings.

B. Project Origins and Description

Basic Village Education (BVE) was a regional AID/LAC project, administered in Guatemala by the Ministry of Education in collaboration with the Ministries of Agriculture and Health. Technical services were provided by the Academy for Educational Development (AED) under Contract No. AID/CM/la-C-73-19 with the U.S. Agency for International Development. An independent evaluation of the project was conducted by the University of South Florida under subcontract to AED.

The project developed out of discussions directed toward the feasibility of using various combinations of modern communication systems to educate the large mass of illiterate peasants in Latin America who are outside the formal education system. The use of radio was envisioned as an alternative for reaching illiterate adults with a broad spectrum of messages on health, nutrition and agriculture. Message content was ultimately restricted to agriculture for purposes of the experiment. The project objective, as stated in the Project Implementation Plan (AED 1973) was:

> To determine effectiveness and relative costs of different mixes of communications media, used to supplement the work of extension agents (limited in number), in influencing change in agricultural practices and production among the Ladinos and Indians of rural Guatemala.

Matched experimental and control areas were established in two sharply contrasting cultural environments, a predominantly Spanish-speaking "Ladino" area in southeastern Guatemala (the Oriente) and an area of Quiche-speaking Indians in the western Highlands (the Occidente). People in different parts of the experimental area in each region received the same basic messages through one of four combinations of communication methodologies (message delivery systems) which constituted the "treatments" for the

experiment. Insofar as possible, BVE messages were excluded from the control areas. The delivery systems (treatments) used as experimental variables were:

> System R (Radio). Educational messages reached the target audience from the project only through mass media, principally radio. For purposes of the experiment, the project installed and operated a radio station in each of the two regions. (In most ongoing extension programs, existing radio stations would be utilized for airing agricultual radio programs. The experimental design precluded this possibility in the case of BVE.)
>
> System RM (Radio-Monitor). Interpersonal contact was used to supplement radio in delivering educational messages to the target population. Farmers were linked to the mass media delivery system through a "monitor", a local person employed and trained by the project who worked with farmers in his own and three or four adjoining villages.
>
> System RMA (Radio-Monitor-Agronomist). The most intensive treatment--a low level of extension agronomy assistance (one agronomist equivalent per 600 and 300 families, respectively, in the Oriente and Occidente) was provided in addition to interventions through the radio and monitor. The agronomist also served as the monitor supervisor and was a key feedback channel from the field to project headquarters.
>
> System M (Monitor Only). Added in 1975 to ascertain the effect of the monitor apart from the radio.

Although these systems were originally designed as independent variables, experience revealed that some interdependence was unavoidable; feedback received from the field through the monitors and agronomists was used to modify and localize messages delivered via all systems. Such interdependence, although presenting some problems for evaluation, was desirable from the operational standpoint in that it assured dissemination of the same basic messages through all systems; and it resulted in localizing radio as a communication medium.

Project implementation began in April 1973, and educational programming in the Oriente region was started approximately ten months later. The startup of educational programming in the Occidente region was delayed about one year due to the need for additional preprogram studies. Educational programming was continued for nearly three years in the first region and for two full years in the second.

The independent project evaluation began with baseline studies

in each region prior to initiation of educational programming, and included annual re-surveys of the total farmer sample and monthly interviews with a smaller subsample. A final survey of the total sample was conducted late in the final year of educational programming in each region.

Although project evaluation was independent of project operation, the evaluation team worked closely with operational staff to ensure the integrity of the experiment; and operational staff made extensive use of evaluation results in development and conduct of the educational program.

C. Planning and Implementation

The communication variables (other than radio) and specific communication strategies were determined during the early months of project implementation. The first step was to gain familiarity with the people in the project's areas of action through study of census data, reports and official statistics, extensive field visits, reconnaissance studies, and (for the Occidente region) the results of a preliminary study made prior to selection of experimental and control areas.

The second step was to identify promising communication strategies that would ensure appropriate use of various methodologies to obtain maximum complementarity and mutual reinforcement in the dissemination of information to the target population. The general process described in Part I, Section II, was followed in developing BVE strategies.

Knowledge about the characteristics of the region and its people gained through step one and promising communication strategies identified through step two provided the basis for determining the experiment's specific communication variables.

The following excerpt from the BVE Implementation Plan illustrates the process through which it was developed (AED 1973):

> The agricultural cycle dictates the timing of all aspects of the program. Message delivery, to be synchronized with that cycle, should begin in January of a given crop year and continue at least through October. Consequently, all operational planning, installation of facilities, collection of baseline data, training, and preparation of needed materials must be completed prior to January. . .
>
> Overlaps in time and function have been taken into consideration in the development of the operational plan. A total time frame of two years is used for

each year of message delivery--six months for preparation, 12 months for programming, and six months for followup evaluation and analysis of results. Except for the initial preparation phase (partially), and the final analysis and report phase, the above functions will be carried out concurrently.

A variety of tools (such as activity calendars, schedules and PERTs), used for both planning and implementation, helped to maintain the tight schedule of activities required to put the program into operation and to meet programming deadlines.

Planning is a dynamic process; plans must be continually adjusted to take advantage of new opportunities and changing situations, and to improve the program through using the results of feedback and evaluation. BVE activity calendars and other planning tools were updated frequently to maintain the needed flexibility. Ray (1978) concluded that the Project Implementation Plan served the project well even though the project was confronted with a number of major unpredictable developments, such as a disastrous earthquake and the petroleum crisis which resulted in scarcity and greatly increased prices of fertilizer.

The BVE organizational structure was developed strictly along functional lines. Its four major sections (message development, materials production, message delivery, and formative evaluation) corresponded to the four major components of the educational programming system discussed in the next section. BVE operating systems were designed during Project Implementation Plan preparation, developed during the early months of implementation, and continually refined as the project progressed.

A formally constituted BVE/Ministry of Agriculture (MOA) coordination committee established through a letter of agreement between the MOA and the project provided a viable mechanism for coordination between the project and that ministry. Such coordination, and substantive MOA involvement, were essential to project operations as the technical content of the educational program originated with Agriculture, and extension workers in the project areas functioned within the MOA.

D. The BVE Educational Programming System (From Ray 1978)

The BVE educational programming system (Figure 1), which was refined and improved with experience, proved to be equally functional for both the Oriente and Occidente regions. It was designed to assure that:

- Educational messages were localized, practical,

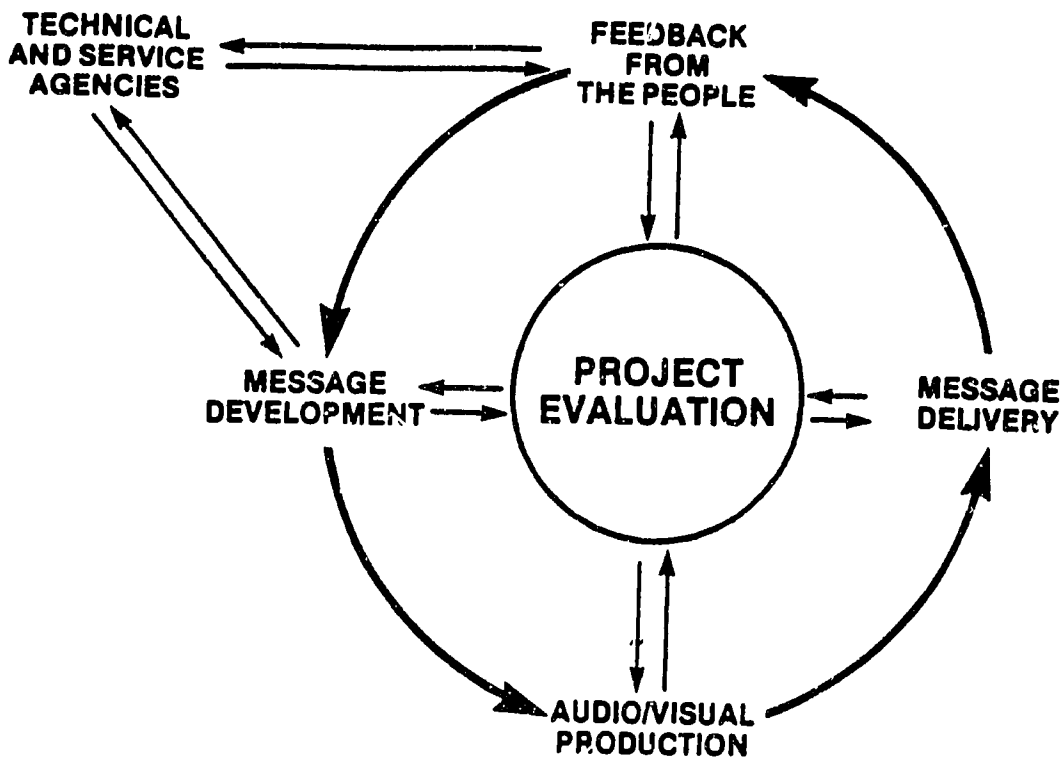

Figure 1. The BVE educational programming system. (AED 1978)

and directed toward the interests, problems and potential opportunities of people in the rural areas.

- Messages were delivered in the proper sequence at the right time through appropriate media.
- Comprehensive information was obtained from the people regularly and systematically, and fed back into the system quickly to improve the program's quality and acceptability.

Ray concluded that the key to the system's success lay in the manner in which its four components were coordinated, integrated and linked with other technical and service agencies. He reported that the BVE system proved to be equally viable for use in other subject matter areas such as health for which limited programming was developed.

1. Message development

Agricultural message content, for which the project's technical agriculture section was responsible, involved seeking out, organizing

and cross-checking information from three distinct sources:

- The people to whom the messages were to be directed.
- Institutions responsible for generating technology and information.
- Institutions, both private and public sector, which provided farmers with needed goods and services.

The Ministry of Agriculture was the primary source of technical information, and approved all technical message content prior to its use in BVE programming.

Four basic documents provided guidance for planning and production of program materials for dissemination in the various media:

- An annual calendar of agricultural messages, prepared in collaboration with regional Ministry of Agriculture staff, which indicated when the major agricultural themes should be programmed to synchronize BVE message content with the agricultural cycle in each region. An example is shown in Figure 2.
- An annually updated volume of "technical agricultural content" for each region, prepared by project agronomists and approved by the Ministry of Agriculture. This volume contained the technical information, organized by the major themes included in the annual calendar, on all topics to be covered in a complete year of programming. The material was organized and presented in a form that could be readily used by the nontechnical scriptwriters and graphic arts staff.
- Scriptwriter's guides, prepared by project agronomists to accompany each theme, which identified relevant objectives and the key points or ideas included in the theme to which the guide related.
- Bi-weekly educational message plans (called "strategies" in project jargon) developed from the annual calendar. These strategies, prepared by project agronomists in collaboration with production staff, provided a bridge between message development and educational materials production. Prepared with a lead time of about two months, the strategy indicated specific behavioral objectives and content for each program in each medium on each day.

Although most programming was carried out as planned through the above process, flexibility was maintained to adjust individual programs or program series to unanticipated conditions such

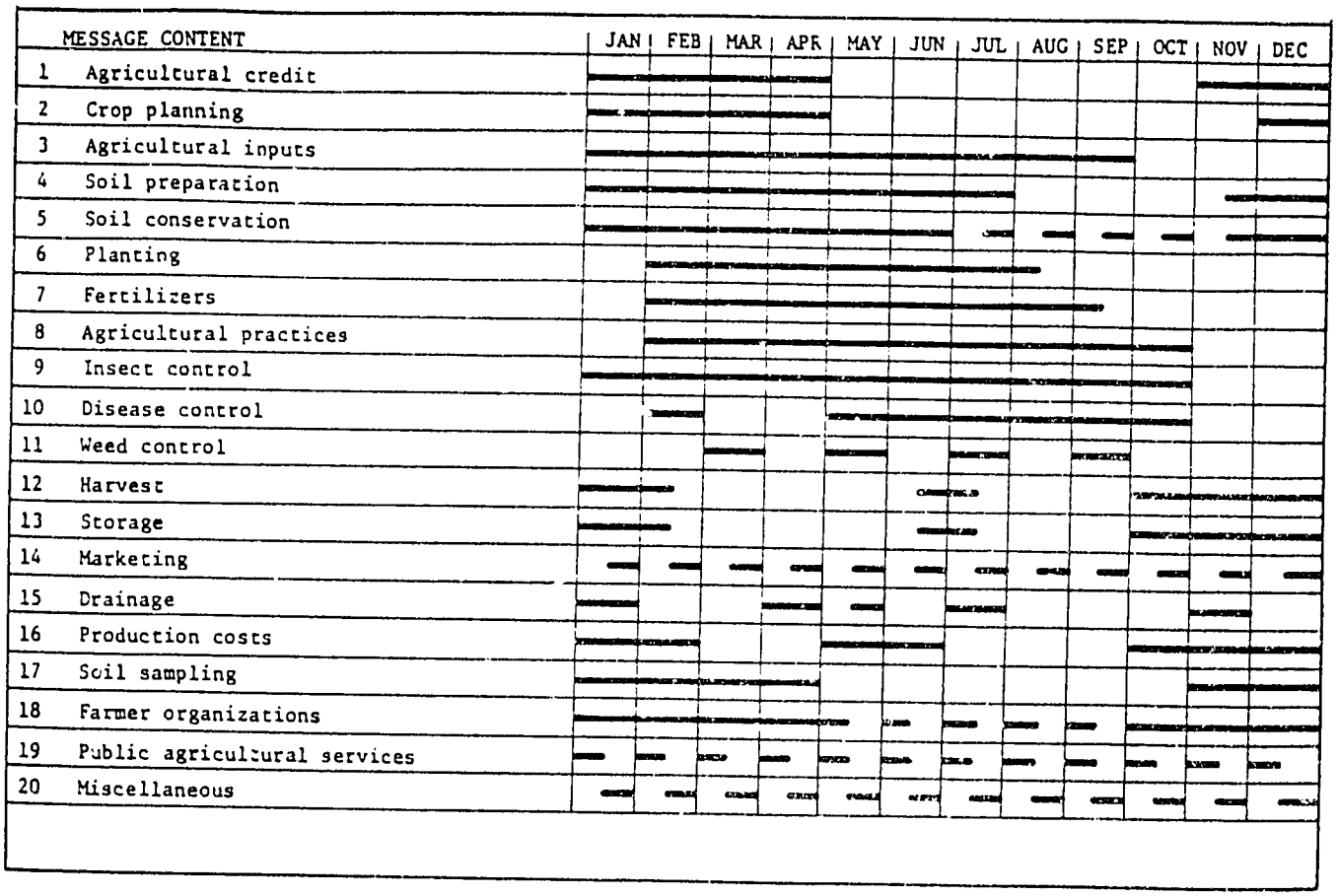

Figure 2. The BVE calendar of agricultural messages for 1976 programming in the Occidente region of Guatemala. (From AED 1978)

as drought, pest attacks, etc. In cases of emergency, radio was used immediately to respond to such situations, and programming in other media could be adjusted within about a week.

2. Educational materials production

During its 1974-1977 educational programming period, the project produced 10,652 separate audio materials (including radio programs), and more than 167,000 copies of 1,580 original graphics for regularly scheduled use. Additional audio and graphic materials of various types were produced in varying quantities for field testing and evaluation, and in response to requests from other programs.

All segments of the project staff were involved at some stage of planning for production, the transitional stage between message development and actual production. The final planning step was a weekly meeting of the scriptwriters and artists with the agronomists. The dialogue established through such sessions

resulted in effective interaction and integration of technical and production staffs, a major goal in development of the project's programming system. Scriptwriters and artists also maintained association with field personnel and farm families through periodic trips to the field.

All audio, graphic and written materials required for the program were produced in the project's modest materials production unit. Production schedules were developed and followed to assure that all materials were ready and delivered to the radio station manager or field staff ahead of the time they were to be used. The final check on accuracy of technical content was made by a project agronomist prior to final production.

3. Message delivery to the target audience

The delivery systems through which agricultural information was imparted to farm families by the project have been described earlier. Some additional information concerning radio and the monitor, each of which was a component in three of the four delivery systems, may be helpful, however.

BVE radio stations operated on mid-band frequencies in direct competition with other stations in each of the regions. To attract and maintain its listening audiences, BVE broadcast a variety of pre-recorded and live programs, only about 20 percent of which were related to agriculture. Programs on agriculture, health, national culture, and special music were produced and recorded in project studios.

Live programs of community interest--musical variety shows featuring local groups, announcements and reports of local events, responses to letters received--helped to provide a link between the local people and the often impersonal voice on the radio. This identification of local people with the radio was undoubtedly a significant factor in maintaining large listening audiences throughout the period of the project as revealed by periodic listener surveys.

The necessity for installing and operating two radio transmitters, and for producing programs for the full eight hours that each station was on the air daily except Sunday, increased project costs significantly. The airing of agricultural programs over existing stations as would be recommended for most projects would have been much more cost effective. This option was not available to the Basic Village Education project, however, due to experimental design constraints.

A major interpersonal channel used by the monitor with farmers in the communities for which he was responsible was a weekly farmer meeting, known as a radio forum. That was a misnomer, however, as the monitor used pre-recorded audio cassettes accompanied by a short flipchart series to disseminate the key agricultural

message of the week to those present. The presentation was followed by a discussion period, and each of those attending received a handout BVE monitors organized more than 2,000 such meetings during the course of the project attended by a total of nearly 24,000 adults.

Another major activity of the monitor was to conduct crop demonstrations--a total of 75 such demonstrations were conducted by BVE monitors during the educational programming period. A third activity was to visit farms in his communities to observe crop conditions, visit with the farmers, and collect feedback information.

4. Feedback from the people

Both operational staff and evaluators considered the fourth component of the BVE educational system, feedback from the people in the project's areas of action, to have been a major factor in the project's success. The BVE feedback system and other sources of information used to improve educational programming are described below.

E. Feedback/Operational Evaluation
(From Straub 1978)

1. Direct feedback

Feedback received from the target audience through various mechanisms was a prime source of the information needed for localizing and improving message content, for producing acceptable audio and graphic materials, and for reaching the people effectively through the BVE message delivery systems. Key words in describing such feedback were: frequent, systematic, reliable, comprehensive, and timely.

Project monitors gained special insights into what was happening in their assigned areas through their weekly meetings with farmers, farm visits and daily involvement in community life. Every Saturday they reported to their supervisor (a field agronomist) about:

- Radio forum attendance and interest.
- Questions and problems of the local farmers.
- Current interests and concerns of the people.
- Local acceptance of the educational programming.
- Crop and climatic conditions in their communities.

The field agronomist was also a valuable source of feedback information. In addition to identifying and reporting on agricultural problems in the RMA system area, he was also responsible

for keeping the project informed about local market prices of agricultural inputs and basic grains, and on news about other regional agricultural agencies and programs.

Each field agronomist submitted comprehensive weekly feedback reports to project headquarters. Both monitor and agronomist feedback reports were normally received at project headquarters on Monday of each week, and distributed to the staff by Tuesday afternoon or soon thereafter. If the reports contained information on which some other institution or agency should act, that information was passed on to them immediately.

Although BVE programs were mapped out on an annual basis, frequent modifications were made during the year in response to information contained in the weekly feedback reports. Other institutions to which relevant feedback was forwarded also acted promptly on numerous occasions to correct problems about which they might otherwise have been unaware.

2. Letters received

The nearly 95,000 letters received during the life of the project provided another valuable source of information about audience reaction to BVE programming. People writing these letters obviously did not constitute a representative sample of the target audience (about two thirds of the farmers within the range of BVE programs were illiterate). Nevertheless, the letters were an important tool for localizing and personalizing the messages to the extent that BVE radio became, in a very real sense, part of life in the community. Also, useful information was received about audience preferences, questions were received which were answered over the radio, and the letters served as indicators of the geographical distribution of the listening audience.

3. Materials development and testing

Another important component of the BVE feedback/operational evaluation system was the program materials development and testing program. Although early progress in pretesting audio and graphic materials in the field was slow due to personnel constraints, some testing was done from the outset. Later, a small materials testing unit was established which concentrated on the development and field testing of graphic materials. Although field evaluations varied with the type of material to be tested, two basic approaches were used: continuing panels of farmers who met with evaluators on a regular basis, and individual interviews with a stratified sample.

Although more similarities than differences were found among people in the Oriente and Occidente with respect to their comprehension and acceptance of materials tested by the unit, differences were found in such factors as visual literacy, perception of

detail, and color and size preferences. Such findings were immediately fed back into the programming process for use in improving the quality, understandability and acceptability of materials produced.

The lack of adequate materials pretesting early in the project was a serious deficiency. Its consequences were minimized, however, by the strong feedback system that enabled the project to react quickly to correct any problems with the various kinds of educational materials before they could have significant negative impact on the program.

4. Special studies

Special studies were conducted periodically to determine the characteristics and distribution of the audience. Included among such studies were radio listener surveys, radio coverage tests, and a pilot study to evaluate the effectiveness of pre-recorded messages delivered by a community volunteer to his friends and neighbors.

As cited earlier, results of the independent project evaluation were also utilized to guide and improve the project's educational programming. The combination of in-depth information from the annual surveys and more limited information from the smaller monthly surveys provided information on farmer and rural family characteristics, interests and needs, mobility, sources of information, reactions to BVE monitors, agronomists and radio, etc., that the project would otherwise have been forced to collect on its own.

F. Training

(From Ray 1978 and AED 1978)

Staff training and development were accorded high priority from the outset of BVE. Personnel assigned to the project by the Ministry of Education had only limited prior experience and/or training in either non-formal education or agriculture, much less in the intricacies of the project's integrated programming system.

Training was tailored, insofar as possible, to the individual and to the job to be done. In general terms, the approach was to give relatively short, intensive, specific job training with strong emphasis on the practical and orientation into the project as a whole. That initial training was followed with a continuing program of reinforcement and development--in-service training and orientation, constructive supervision, and staff interaction. After the project became operational, new staff were assigned to work temporarily with an experienced staffer in a "learn

by doing" situation before receiving their permanent assignments.

Monitor training merits special mention. Those selected as monitors were farmers or members of rural families. The only educational requirement was literacy. Their initial training was short, about two weeks, and they were given only about one week of followup intensive training each year. Still, within a year or so, they were able to answer many of the farmer's agricultural questions and were quite competent in the communication skills required for their work. The key to such rapid progress was a weekly session with their agronomist supervisor.

During the first part of that session, the supervisor reviewed with the monitors their activities of the week, answered their questions, and discussed with them ways in which they could have done a better job. Then, intensive instruction was given concerning the agricultural content of the messages for the coming week and what was expected of the monitors. Emphasis was placed on the practical. For example, when soil conservation was to be the subject of the next week, the monitors had to lay out a terrace on the contour during the weekly training session.

The importance of frequent and systematic technical backstopping and instruction cannot be overemphasized.

G. Results from Basic Village Education

1. Summative evaluation
(From AED 1977 and Rich et al 1978)

The rigorous evaluation of BVE began with baseline studies in each region prior to initiation of agricultural programming, followed by an annual resurvey. The final survey was conducted late in the final year of educational programming in each region. A subsample was surveyed monthly while educational programming was in progress. Nearly 1500 farmers were included in the baseline survey; the same sample, except for unavoidable attrition, was maintained throughout the study. Although educational programming continued in the Oriente region for nearly three years, only the last two complete years were used in the analysis.

A few of the more significant findings are summarized below.

- All BVE media combinations had measurable impact on knowledge about, attitudes toward, and/or use of modern agricultural techniques.

A composite measure of agricultural practice level, a 13-item total practice index, was used to measure change within and

158

between treatment conditions over the life of the project.

The positive change that occurred in the Oriente region was significantly greater than might be expected by chance as shown below.

Comparison of total practice scores in Oriente experimental and control areas, 1974 and 1976 by mean score: change within treatment condition across years.

Sub-area [1]	N	1974 Mean	1976 Mean	t [2]	Sign.[3]
QR	101	30.28	35.64	6.88	<.001
QRM	102	27.94	33.05	6.90	<.001
QRMA	101	27.64	32.77	8.11	<.001
YR	111	23.76	29.30	10.87	<.001
YRM	103	23.24	27.55	7.29	<.001
YRMA	106	25.49	33.49	13.83	<.001
IM	92	25.97	32.18	9.11	<.001
IC	104	25.00	27.84	5.30	<.001

1 First letter indicates group of communities which comprised an experimental or control area:
Q - Quesada; Y - Yupiltepeque; I - Ipala

Other letters indicate treatment as described earlier:
R - Radio alone
RM - Radio/monitor
RMA - Radio/monitor/agronomist
M - Monitor alone
C - Control

2 t - tests for paired comparisons.

3 Significance tests are based on 2-tail probabilities of t.

Although the above analysis showed conclusively that positive change did take place, further analyses were required to assess the possibility of differential treatment effectiveness on change. Using Fisher's Least Significant Difference test to test hypotheses of differential treatment effectiveness in the Oriente, the evaluators found that:

- all treatment conditions except the Yupiltepeque Radio/Monitor showed a significantly greater rate of change than the control;

- the Yupiltepeque Radio/Monitor/Agronomist condition showed a significantly greater rate of change

than all other treatments and control;

- while showing a significantly greater rate of change than the control, the Ipala Monitor, Yupiltepeque Radio, Quesada Radio, Quesada Radio/Monitor, and Quesada Radio/Monitor/Agronomist conditions did not differ significantly from each other.

- Ipala Monitor was found to produce a significantly greater rate of change than Yupiltepeque Radio/Monitor.

From similar analyses of data from the Occidente region, the evaluators found that:

- there was evidence of overall change in the BVE treatment areas as measured across years, but change was also found in the Control are

- there was evidence of differential treatment effectiveness with the Radio/Monitor/Agronomist and Radio/Monitor conditions appearing to be superior.

- There is no single media combination that is most effective for all situations.

The potential effectiveness of the various media combinations varied with the level of development, the economic well-being, and the present and previous exposure of the people to mass media and technical assistance.

- For an area relatively advanced in these respects, radio alone was used immediately as a source of new information, much of which was translated into positive behavior change.

- For areas rating relatively low in these respects, the full Radio/Monitor/Agronomist media combination was required to achieve maximum program impact on knowledge and behavior change.

- In the very traditional Occidente area, radio was capable of introducing new agricultural ideas and reducing the fear of implementing them. However, reinforcement by agronomist and/or monitor was needed to maximize impact of radio as an information source, and to translate that information into positive behavior change within a two year period.

This set of findings reinforces the justification presented in Part One of this paper for developmental investigation prior to final determination of communication strategies and initiation of communication support programs in technology transfer projects, as well as the need for multimedia interventions under many circumstances.

- Total practice index scores were positively correlated with crop yields.

The two year period of educational programming was insufficient to expect large area-wide increases in agricultural production. Nevertheless, the BVE evaluation provided evidence that the project's educational program would ultimately lead to such increases. Looking at the total practice index scores and crop yields, there was a significant correlation between the use of improved practices that influence yield and yields obtained by the farmers. Correlations found between those scores and crop yields in the Oriente were as follows:

Year	Crop	Correlation	N	Significance
1974	Corn	.39	818	<.001
	Beans	.18	768	<.001
	Sorghum	.17	704	<.001
1975	Corn	.46	817	<.001
	Beans	.34	697	<.001
	Sorghum	.34	680	<.001
1976	Corn	.18	815	<.001
	Beans	.13	723	<.001
	Sorghum	.19	647	<.001

Similar correlations were found for the Occidente region (horsebeans were substituted for sorghum in the Occidente analyses, as sorghum is not an important crop in that region). As is always the case in agricultural production, crop yields were influenced by a number of factors other than practices used--such as variations in weather from year to year.

2. **Economic analysis**
(From Klees and Wells 1978)

The benefits and costs of BVE impact on agriculture and cost effectiveness of the treatments employed were examined in an economic analysis of the Basic Village Education Project, made independently of the summative evaluation.

Although project costs were well-documented and the summative

161

evaluation provided detailed information about results obtained, the investigators pointed out that a major constraint encountered in the analysis was the short period of educational programming in each region of project action. The literature on adoption of innovations by farmers (e.g., Rogers and Shoemaker 1971) suggests that the adoption process is slow, and a period of five to ten years for an innovation to achieve widespread use is not unusual. Thus, although the summative evaluation revealed that change had occurred which could be related to the treatments employed, those changes may either have not been sufficient or not adopted by enough farmers to show productivity benefits for the region during the period of the experiment.

Based on data from the summative evaluation, results of demonstration plots conducted as part of the educational program and official data sources, and with use of a series of assumptions about and several levels of anticipated benefits, the investigators concluded that

> Most BVE media treatments, under most circumstances encountered in the experiment, have the potential to yield substantial economic returns to both the farmer and society as a whole.

Most of the BVE alternatives included in the analysis (all in the Oriente region) showed projected rates of return greater than 25 percent. For the Radio/Monitor and Monitor Only treatments in the Occidente region under the lowest benefit assumption, and for the Radio/Monitor/Agronomist combination in the same region under the intermediate benefit assumption, projected rates of return ranged from 8 to 25 percent. Only the Radio/Monitor/Agronomist treatment in the Occidente showed a negative rate of return.

The total cost of the project, including both U.S. and Government of Guatemala (GOG) contributions (all expressed as U.S. dollars), was approximately $2.9 million over the period 1973-1978 for all preliminary studies, development activities, installations, operations, and evaluation. The contribution of the GOG amounted to about 25 percent of that total. The major cost item, personnel-related expenses, accounted for 85-95 percent of the total cost. Expenditures for research and related overhead constituted about 35-40 percent of the total U.S. contribution. These costs exclude those that could be attributed to farmers.

The above costs, and the cost effectiveness figures cited below, should be used with caution by planners of new projects, as the experimental nature of the project resulted in much higher costs than would be required for providing effective communication support to an ongoing agricultural project. Research-related costs were high due to the highly intensive summative evaluation. Information production and dissemination costs were also much

higher than would be encountered in most agricultural projects due to the experimental design constraints which made it necessary for BVE to install and operate its own radio transmitters and to produce all educational materials in-house.

The investigators made cost effectiveness comparisons of regional BVE systems expanded from those of the smaller experimental areas of BVE action within each region. The results of those comparisons were as follows:

	Cost/farmer[1] (Quetzales)[2]	Effectiveness/ farmer[3]	Cost effectiveness ratio[4]
Oriente			
R[5]	8.42	2.6	3
RM	35.96	1.9	19
RMA	67.60	3.8	18
M	36.22	3.4	11
Occidente			
R	3.58	0.4	9
RM	61.46	1.5	41
RMA	123.08	1.4	88
M	61.58	0.2	308

1 For two years of full treatment costs (i.e., relevant to international decisionmakers now, or to Guatemalan decisionmakers when the project was initiated), not including farmer time.

2 Q.1.00 = U.S.$1.00.

3 Agricultural practice index points; from results reported from the summative evaluation, again based on a two-year impact.

4 The ratio of quetzal cost/farmer to effectiveness/farmer.

5 The BVE treatments described earlier.

The cost per farmer listening hour for an expanded program in southeastern Guatemala was estimated to be $0.03 for Radio (assuming that 50 percent of the farmers listen), $0.25 for a Radio/Monitor combination, and $0.38 to $0.51 for a Radio/Monitor/Agronomist combination. From the standpoint of the Guatemalan decisionmaker, annual generated benefits of about $4.25, $11.50 and $16.00, respectively, per hectare would be needed to cover both program and farmer costs for these combinations. (A slightly modified Radio/Monitor/Agronomist system, which BVE experience appeared

to justify, was used for these estimates.) For purposes of comparison, annual generated benefits per hectare required for a traditional extension service on the Guatemalan model would be approximately the same as for the most expensive BVE treatment.

IV. Masagana 99 in the Philippines

The Masagana 99 campaign was a program in the Philippines whose goal was to achieve self-sufficiency in rice. Its results illustrate the technology transfer that can be achieved when an outstanding technology (the IRRI rice varieties), provision of the goods and services required by farmers to adopt that technology, and an effective communication support program are combined with strengthened extension to serve the farmers' needs. Private sector involvement and private/public sector interaction contributed significantly to the success of the campaign.

A. Overview

The reasons for launching Masagana 99, in the words of the Minister of Agriculture (Ministry of Agriculture 1978), were to "solve the twin problems of low rice yields and rice shortages." It was essentially an integrated technology-business-management package for helping farmers to improve their rice production, which was carried to the farmers through an equally integrated strategy involving a strengthened extension service and multimedia communication support.

Although problems were encountered which reinforced the need for careful monitoring (emphasized in Parts One and Two of this paper), the campaign was a success. The goal of self-sufficiency was met and exceeded--disposition of the excess rice production was in itself a serious problem.

No cost-benefit studies were available on which to base conclusions concerning the economic viability of Masagana 99. Nevertheless, the fact that the program continued and its concepts were expanded to the production of other crops such as soybeans, corn and sorghum is evidence that government decisionmakers found the rates of return from the project to be favorable.

B. Program Origin

The Masagana 99 slogan was first used for an IRRI (International Rice Research Institute) pilot program supported by the Rockefeller Foundation from 1971 through 1973 which preceded the much larger program covering some eighteen provinces launched by the Philippine Government in 1973. Although many traditional rice plantings were wiped out by typhoon, floods and a massive epidemic of tungro virus during 1971 and 1972, adjacent IRRI test plots survived and gave good yields. These results, plus the acceptance

of the program in the field, encouraged scientists to continue (IMC 1974).

The Minister of Agriculture eloquently expressed the reasons for launching Masagana 99 in the introduction to the revised bulletin "Masagana 99 Rice Culture: 16 Steps" (Ministry of Agriculture 1978). To quote,

> **YOU**, the Filipino rice farmers play an important and major part in the progress of our country. . .
>
> For sometime now, our Government and scientists have exerted every effort to help you increase your yield. Since 1958, extensive research had been conducted to modernize our rice production technology. The results of these studies were made available to you as early as 1966. However, most of you did not apply the recommended practices in your fields. There were farmers who followed some of these recommendations but ignored the rest. For instance, most of the farmers who used the newly developed high-yielding varieties did not use fertilizers. And among those who followed the recommended fertilizer application, many did not practice effective pest control. Because of this very slow adoption rate and partial application of the recommended practices in modern rice production technology, your yields were low. As a result, our country experienced frequent rice shortages.
>
> To solve the twin problems of low rice yields and rice shortages, our Government launched the Masagana 99 rice production program in May 1, 1973.

C. Program Elements

As summarized by de Jesus and Soriano (1978), Masagana 99 was essentially an integrated technology-business-management package which would make it possible for farmers to adopt new rice production practices. According to these authors, the key elements were:

- The allocation and subsidy of fertilizers and chemicals which were in short supply.
- Development and distribution of adequate supplies of high yielding seed varieties.
- The provision of adequate supplies of credit at reasonable rates of interest to finance the purchase of these inputs.

- Presence of technical advisers to provide guidance and monitoring of the program from the technical planning to the harvesting and collection of the loans.

- A price support system that would ensure the farmer a decent price for his efforts.

- Transportation, milling and storage facilities that would ensure the viability of the price support system and provision of credit.

An important seventh Masagana 99 element, not listed by these writers, was the massive communication support integrated into the program.

D. The Masagana 99 Program
(From Merrick 1981)

An extension service strengthened through intensive staff training and provision of various incentives to those who were selected for service in the program provided the necessary on-the-ground support. To promote the campaign as a program of national survival and to educate farmers in the new rice technology and credit program, Masagana relied heavily on a mass communication strategy.

1. A strengthened extension service

The Masagana 99 extension agents provided technical information about rice production practices to their assigned farmers, helped them to prepare the farm plans and budgets required to obtain Masagana 99 credit, and had a major responsibility for the collection of loan repayments. As described by Merrick:

> An army of farm technicians was created to help spread the new cultivation techniques to farmers unfamiliar with them. From the existing corps of 6,000 agricultural extension workers (most of whom had bachelors degrees from the University of Los Banos), 3,200 passed a qualifying test and were trained in the basic 16 step process. Their job was to teach the 16 steps to farmers in their districts, to form local farm organizations called seldas, and to facilitate the farmers' applications for loans. Their training lasted two to six months, and included the identification of pests, a three-month practicum working with farmers, and a two-week training course on loan processing and evaluation.
>
> Farm technicians were given salary incentives to increase their participation and effectiveness in the program. . Technicians could also apply for loans to purchase

their own motorcycles at cost. While motorcycles added status to the extension agents' place in the community, they also significantly increased the number of calls an agent could make daily.

. . .Each agent was responsible for 150 farmers [in practice, this number varied and was usually exceeded]. . . The corps of special farm technicians wore bright orange uniforms which served a double purpose. The color identified them as members of the Masagana 99 program, and it made them visible across long distances.

Extension activities were coordinated throughout with the mass communication campaign to obtain mutual reinforcement and increase total program impact.

2. The mass information campaign

Print, radio and other promotional materials were the principal media utilized in the integrated mass information campaign.

Print. Scientific requirements for cultivating high-yielding rice varieties were simplified into "16 steps" and published in an illustrated pocket-sized booklet that was widely distributed to farmers. (The high literacy rate among Filipino farmers made printed materials a reliable means to provide them with detailed information.)

The farmers' comprehension of instructional illustrations in the "16 Steps" booklet was tested during its development. Similar pre-testing of the text was not possible, however, due to time constraints in starting up the campaign. Farm extension agents introduced the booklet in group or individual meetings with farmers, explaining and teaching the new methods before the farmers took it home with them.

Although information was also carried by newspapers and magazines, their more important role was to help create a consciousness of change--an awareness that the success of Masagana 99 meant national survival. The 16-step Masagana 99 package was illustrated in comic book format in newspapers and magazines, and three four-page supplements produced in local languages were inserted into daily and weekend papers.

Radio, used for promotion, information and instruction, was the most pervasive communication medium used to mobilize and educate the Filipino farmers. Broadcast radio reached 85 percent of the island population, and three fourths of the farmers owned a transistor radio.

The <u>first</u> use of radio was to <u>promote</u> the program, utilizing modern advertising techniques to win the farmers' acceptance

and cooperation. Radio spot messages were produced in six languages. Eight one-minute mini-dramas introduced the new credit program and cultivation techniques. Four 30-second spots touched chords of patriotism and exhorted participation in the campaign. A special Masagana 99 jingle was created which became the signature tune for the radio spots which were broadcast systematically and repeatedly for three months on 245 radio stations throughout the country.

The second application of radio was informational. Trained "farmcasters" made daily broadcasts of detailed and timely information on problems and conditions in their micro-regions. For example, the water superintendent who controlled the irrigation system used the radio to announce when and where water would be distributed to the fields. As the time came for a new cultivation step, the radio farmcaster would advise farmers and remind them what to do--reinforcing the advice given in "16 Steps". Questions of general interest received from farmers by the radio stations received discussion on the air. This encouraged farmers' interest in radio and their trust in radio messages.

Fifty-eight separate 30-minute programs--one in each of the 58 principal Filipino rice-growing provinces--were broadcast before dawn six mornings a week. Such localized broadcasting ensured that technical information was appropriate to specific regional climates and conditions. The morning farm program was still continuing in 1981 and had expanded to an hour in many places.

The third use of radio had long range educational goals. Fifty thousand farmers took short courses through the Farmers' University-on-the-Air and were certified at new levels of agricultural competency. Typically, farmers listened to the morning broadcasts, read supporting (simple) print materials, and took short tests broadcast over the air which were returned to the farmcaster by mail or through the extension agent. The tests were graded and returned to the farmers. Correct answers were subsequently read over the air. Those who successfully completed the course were given certificates at annual graduation ceremonies.

The University-on-the-Air was also used to test the effectiveness of farm broadcasters who planned and produced the programs. Farmer response to the broadcasts was monitored, and tallies were kept on how many registered for courses and requested the materials discussed on the air. If the number of registrants for courses offered was consistently low, the broadcaster was replaced.

Other promotional materials such as auto stickers, flags and billboards were spread throughout the country. These created a campaign atmosphere to win support and to promote involvement in the rice-growing campaign.

Farmers participating in the Masagana 99 program were given coded flags on poles for use in the rice fields. Red flags left at the edge of a paddy by a farmer would signal that the farmer needed help from the technician or, if left by a technician, that he had identified something amiss with the farmer's crop.

To summarize, the campaign was based on a "channel strategy" that effectively integrated the use of media and the interpersonal communication channels of the extension agents to: inform farmers about the technologies recommended and services available to them; promote the adoption of the high-yielding varieties and the associated practices needed to take advantage of their genetic potential; instruct farmers in the use of the technology; and reinforce the farmers as they encountered problems in using the technology. (See Part Two, Section VE for a discussion of channel strategies.)

E. Problems Encountered

Although the campaign was highly successful, some problems were encountered. For example, Lynch and Barrameda (1974) found from a study of one area after the first cropping season had been completed that few of the production technicians were involving their farmer-advisees in the making of the farm plans and budgets. As a result, farmers were not learning how to do their own planning and budgeting, which could have increased their ability to improve their farming enterprise and, at the same time, relieve the future load on the production technician. In their case study from another area, made after Masagana 99 had been operative for several seasons, de Jesus and Soriano (1978) identified a series of credit-related problems. Such problems illustrate the need for continual monitoring of all project components as discussed in Part One, Section IV, and Part Two, Section VH.

Perhaps the most serious problem of all was that Masagana 99 became a victim of its own success. The program was so successful that the Philippines was transformed from a rice-deficient to a rice-surplus country and encountered difficulties in disposing of the excess production.

F. Results

In gross terms, the success of Masagana 99 is summarized in the following quotation from Jaleco (1978):

> In 1973-74 rice production rose by 27%, and marked an average increase of 9 percent every year thereafter.

As of the end of June 1978 the country had 1.16 million tons of rice, which is 138,000 tons more than the nation requires over and beyond the prescribed three-month buffer stock of 980,000 tons.

Merrick (1981) summarized the results of Masagana 99 as of that date in the following terms:

As an effort to increase rice production, Masagana 99 was clearly a success. In only a few years, the Philippines was transformed from a rice-importing to a rice-exporting nation. This achievement was the result of many factors, but one of the most important was the systematic use of mass communications to motivate and educate a large farm population.

Another measure of success was the impressive 83 percent repayment rate of the non-collateral loans during the first five years--a higher repayment rate than that of the commercial sector. In addition, the large numbers--50,000--who signed up and completed short courses broadcast over radio, the frequent use of radio for sending and relaying messages about new cultivation techniques, and the success stories of those participating in the program are all objective indications of success.

Critics of Masagana 99 argue that the campaign did little to distribute the benefits of the program to the massive numbers of small farmers whose participation was critical. . .they point out that even though the Philippines now exports rice, there are still many people without rice in the country. These stern realities cannot be ignored despite Masagana 99's success in raising productivity.

The Masagana 99 program persists today. . .One of the most striking proofs of the usefulness and success of the communications component of the campaign is the continued, heavy reliance on mass communications techniques to promote and educate farmers in new cultivation methods.

The corps of farm technicians thrives. . .Radio farmcasters make daily use of the principles of communication feedback to make their programs more relevant to their farm audiences. . .The Farmers' University-on-the-Air continues to train hundreds of farmers throughout the islands in new farming techniques. . .

One of the long term results of the Masagana 99 campaign was an over-abundance of rice production, to the detriment

of other crops needed in the Philippine diet. Today, many of the communications techniques devised for Masagana 99 are being applied to the production of other crops such as soybeans, corn and sorghum.

An implicit objective of many development communication programs is that communications tools and techniques will be found sufficiently useful, once a project formally ends, that countries will continue to use these communications strategies in the same programs or modify them for new programs. This measure of success has been met in the Philippines.

Although most of Merrick's conclusions appear well justified by documentation to which the author had access, a critical qualification should be added.

The systematic use of mass communications was unquestionably a major factor contributing to the success of Masagana 99. This achievement was made possible, however, by also meeting other prerequisites for widespread technology transfer such as:

- a package of appropriate improved technology;
- an adequate supply of inputs and credit;
- markets to which the farmers had ready access; and
- prices for the farmers' production maintained at levels that enabled them to utilize the technological package at a profit.

Masagana 99 thus provides an excellent example of the potential for change when all of the necessary ingredients for achieving technology transfer are present.

V. Mass Media for Agricultural Extension in Malawi

The use of mass media in extension is well-established in Malawi, and the Malawi Government annually allocates significant resources for communication support. Much of the experience gained through their agricultural communication programs--both positive and negative--can provide valuable guidance in planning and establishing effective communication support components in other agricultural projects.

The effectiveness and relative costs of various communication channels (including mass media) used by Extension in Malawi were studied by Perraton, Jamison and Orivel (1983). More recently, Ray (1985) made an assessment of the Malawian agricultural communication situation and offered recommendations for its improvement. Findings from the two studies provide the basis for this review of mass media for agricultural extension in that country.

A. Overview

Communication support to Malawian extension has historically been organized through the Ministry of Agriculture's Extension Aids Branch (EAB) established in 1958 which produces and disseminates information through radio, printed materials, graphic and audio-visual presentations, films, puppets and mobile vans. More recently, visual aids sections have been established at the regional level in the Agricultural Development Divisions as part of a larger decentralization process.

The facilities, equipment, staff, volume and diversity of production of the EAB have been and are impressive. The effectiveness of communication support provided by the EAB and regional units has been limited, however, by a number of serious problems. Among the constraints reported by Perraton et al were--pressure to maintain the flow of production, physical and organizational isolation, and philosophy of message content. To these, Ray added, among others, lack of linkages and two-way information flow between and among research, extension and other entities involved in the technology development and transfer process; isolation from research; production and dissemination of messages not targeted to a specific audience; and inadequate facilities and inadequately trained communication-related staff at the regional level.

Perraton et al reported the costs of reaching farmers, on a per contact hour basis using a 7.5 percent interest rate, to be: $0.00384 for radio, $0.168 for mobile unit films, $0.0828 for mobile unit puppet shows, and $9.60-13.20 for extension

agents. They concluded that EAB contacts farmers at a very low cost in comparison with orthodox extension methods, that radio is especially cheap, and that farmers do benefit from EAB's activities.

Ray concurred with establishment of regional visual aids sections, provided they are adequately equipped and staffed. He also supported continuation and strengthening of the EAB to: provide leadership to the national agricultural communication support program; produce materials not within the capability of the regional units; train and backstop regional staff; and provide coordination with other agencies. He recommended that Malawi's communication support programs be reoriented and redirected along the lines presented in Parts One and Two of this paper.

B. Organization and Programs for Communication Support

Malawi has historically provided comunication support to its extension programs through the Ministry of Agriculture's Extension Aids Branch (EAB). Established in 1958 as a one-man public relations unit from the Ministry of Agriculture and Natural Resources to provide publicity material for extension, the EAB had grown to an establishment of 76 staff housed in a three story building by the time of the Perraton et al study. As reported in that study, the EAB:

- Provides mass coverage through radio.
- Compiles extension information.
- Provides visual material.
- Provides maintenance and mobile cinema services.
- Provides movie films.
- Provides media services.
- Undertakes printing services for written media.

More recently, communication support has been partially decentralized through establishment of visual aids sections in the eight Agricultural Development Divisions into which the country has been organized for development purposes.

As of early 1985, staff positions--permanent and temporary--assigned to the EAB and regional units combined totaled more than 150.

1. Extension Aids Branch (EAB)

The Extension Aids Branch, as of early 1985, was organized into eight sections: management, publications, radio, evaluation and action research, mobile units (maintenance), cine, editorial, and photography.

Publications. At the time of the Perraton study, the Publications

174

Section (the largest EAB section) was divided into four sub--sections: editorial, typesetting, graphics, and printing. The editorial sub-section prepared the text of everything to be printed, wrote puppet plays to be performed in the mobile vans, translated materials drafted in English, and prepared the bi-monthly farmers' magazine, Za Achikumbi. Responsibilities of the other sub-sections are self-evident. In addition to the bi-monthly magazine, the EAB published four magazines in English on behalf of the Land Development Projects, as well as posters, leaflets and handbooks on the production of various crops.

By early 1985, the Editorial Sub-Section had been upgraded to section status. The types of publications were similar to those reported earlier. One of the major publication responsibilities by 1985 was production of an annual comprehensive Ministry of Agriculture plant production guide. (Due to delays all along the line, starting with the Ministry's research division whose staff prepare the technical content, the guide is not ready for distribution until late in the crop year for which it was written.) Other major print jobs have included a number of publications for Bunda College, the country's agricultural college.

Radio. Perraton et al reported that the EAB was producing 4.5 hours of broadcasting weekly, distributed among six programs of varying length, format and content. The broadcasters were agricultural extension workers by background who had been trained in radio techniques and attended seminars at EAB as part of their in-service training. With the exception of a farming family serial, produced by the Malawi Broadcasting Corporation (MBC) using information from EAB and the Ministry of Health, all programs were produced by EAB Radio Section staff and recorded in MBC studios.

That situation had changed little by early 1985.

Evaluation and Action Research. The primary role of the Evaluation and Research Unit, as reported by Perraton et al, was in the area of formative evaluation--pretesting of program materials. It was not designed to measure or test EAB performance. They reported that evaluation was often seen as a threat by production staff, although evaluation and action research staff tried to gear the section's research to the needs of the other sections.

The evaluation/action research situation had deteriorated by early 1985. The total 1984 output of this Section consisted of two KAP (knowledge, attitude, practice) studies. Data analyses were limited to tabulation and summarization--no results were subjected to any type of statistical analysis. Equipment was minimal--one obsolete calculator and two tape recorders--and two key positions were vacant.

Mobile Units (Maintenance). The Maintenance Section is responsible for operating a fleet of mobile audio-visual vans to show cinema programs and puppet plays to rural families throughout the country. At the time of the Perraton et al study, the Technical Section as it was termed at that time, operated a fleet of 13 such vans.

The mobile van program was still functioning as of early 1985. Although the number of vans had increased somewhat, most of the additional were new vans to replace worn out ones. Transfer of most vans to the Agricultural Development Divisions (ADDs) was anticipated in the near future, to avoid the necessity for excessive travel to and from headquarters and to facilitate integration of the van presentations with ongoing extension activities.

Cine. Perraton et al reported that the Cine Section produced up to fifty films a year, using farmers extensively to demonstrate agricultural practices--which added conviction and realism to the films. The primary use of films produced was in the mobile van program.

This situation had changed drastically by early 1985. Due to rapidly rising costs and the necessity for all film processing to be done outside Malawi, production had been cut back to only a few films a year; and there was little hope that the situation would improve.

Editorial. The upgrading of this former sub-section to sectional status, and its responsibilities are discussed above under the Publications Section.

Photography. The Photography Section, although organized separately, feeds much of its work into the Publications Section. That situation, reported by Perraton et al, had not changed in early 1985.

These brief descriptions of each EAB Section will provide an idea of the scope of the Extension Aids Branch's operations.

Activities and production of the various sections are coordinated by the **Management Section**, which is also responsible for the customary accounting, reporting and similar functions and for coordination with other institutions. Detailed calendars and schedules (such as for radio programming and mobile van scheduling), prepared annually for each major type of activity, indicate message content as well as dates. In addition to providing guidance to production staff and helping to assure that all work is completed on time, such schedules also serve to help coordinate EAB outputs with extension and other institutions involved, and to plan promotional campaigns.

2. Regional visual aids sections

Although they have high potential for moving communication support closer to the rural communities and integrating it into local extension programs, the recently established ADD visual aids sections are still weak according to the assessment made by Ray. Typically, they are inadequately equipped, some staff are not adequately trained, and they function strictly as service units to other parts of the extension and development program. They do not appear to be involved substantively in planning communication strategies as an integral part of the total program. They are administratively reponsible to the ADD, with technical supervision and training theoretically provided by the EAB. Other than intensive pre-service training at EAB headquarters, however, budget constraints render it impossible for EAB staff to provide more than token technical supervision in the regions.

C. Problems and Constraints

Among the major constraints to improved EAB performance identified by Perraton et al, were:

- The constant pressure to maintain the flow of production.

  They reported that the establishment was below strength, and that any proposal for it to undertake new tasks would have to be considered in the light of its existing commitments.

- Physical and organizational location.

  The EAB is housed in a different building than other parts of agricultural extension and is organizationally separate from extension. It is also physically separated from those doing agricultural research and teaching agricultural extension.

- Determination of message content.

  The EAB messages directed toward farmers were considered to be a potentially more serious constraint than the ones cited above. They reported that the EAB seems to work under the assumption that its role is to send instructional messages to farmers, although the investigators were told that Malawi's farmers have moved a long way over the last ten years from needing simply to be told what to do--the farmers already know how to grow corn, for example. (In other words, EAB messages were not farmer-oriented.) These investigators concluded that, if this assumption was correct, relatively little

effort had been made to build systems of feedback into the EAB organization.

The problems and constraints identified by Ray, although consistent with those just cited, were more explicit and far-reaching. Among those he identified were:

- The lack of effective communication support to Malawi extension programs, and of linkages and two-way information flow between and among research, extension, agrosupport institutions, and the farmers, are major constraints to the adoption and beneficial use of improved technologies by farmers.

- Communication of new technological information from research to extension and the field is slow and incomplete, and the information is not localized.

- Social, cultural, economic and other characteristics of the intended audience (farmer, farm family, women farmers, etc.) are not taken into consideration adequately in production of materials designed for direct dissemination to that audience (they are not farmer-oriented as defined in Part Two Section VB). A similar problem exists with respect to staff training programs.

- Teaching and training aids are inadequate.

- Although radio programming is extensive, mass communication strategies integrated into the total extension program to increase coverage and impact are virtually unkown.

- Extension workers need more training in communication skills.

- Communication-related investigation, formative evaluation, pretesting of program materials, and feedback are woefully inadequate.

Recommendations and plans for alleviating such constraints and reorienting Malawi's agricultural communication support programs to meet extension's present and future needs are discussed briefly in Section E below.

D. Costs and Cost Effectiveness

Perraton et al used the EAB 1980 budget in analyzing total and per unit costs for the various EAB activities. That analysis took into account all current and capital costs, including such factors as evaluation and administration that cannot be attributed

to a specific medium and Malawi Broadcasting Corporation costs (in the case of radio). The Lilongwe Agricultural Development Division, with 169 field assistants and 40 farm home agents, was used in the analysis of extension service costs.

From their analysis, these investigators reported that:

- At a total annual cost of between U.S.$680,000 and $775,000 including rent on the capital and a full share of the costs of broadcasting incurred by MBC, the EAB could:

  - reach about 540,000 adults with films and 750,000 with puppet plays;

  - provide 4.5 hours broadcasting a week which reaches nearly one farmer in three;

  - provide printed support material to some 30,000 literate farmers, and to extension services throughout the country.

- The costs per contact hour, using a 7.5 percent interest rate, were as follows:

Radio	$0.00384
Mobile unit - films	0.168
Mobile unit - puppets	0.0828
Extension agents	9.60-13.20

- Costs associated with various types of farmer contact amounted to:

  - about $21 to arrange a single contact between an extension agent and a farmer;

  - about $4 per day for a farmer to attend a one-day training session;

  - about $0.17 per farmer contact hour when a farmer sees one of the EAB mobile unit films;

  - about $0.004 per listener hour for radio.

No quantitative estimates were made of benefits from the communication support provided through the various channels included in the analysis.

E. Future Communication Support to Malawi Extension

Senior Ministry of Agriculture officials are firmly convinced of the need for improving communication support to their agricultural extension and development programs at both the national and regional levels. Extension Aids Branch staff are well aware of the problems which they face, some of which are listed in Section C above; and have been frustrated in recent years by their inability to surmount them. Nevertheless, they have continued to do good work and are prepared to take whatever steps may be necessary to revitalize and reorient their activities and programs to meet present and future communication support needs.

A series of steps to reorient and improve communication support to extension were recommended by Ray in his early 1985 study. Taken together, those steps would result in the planning and implementation of effective communication strategies integrated into the extension program as outlined in Part One of this paper.

- The regional visual aids sections would be strengthened and upgraded to decentralize communication support activities to the local level insofar as is feasible.
- The Extension Aids Branch would be strengthened, and its role modified.
- Through reassignments of some staff, redefinition of some job responsibilities, and a strong training program, the job could be done with minimal staff additions.
- Research-extension-agricultural communication linkages and interaction would be developed and coordinated.
- Communication skills of extension staff would be strengthened.
- Programmatically, communication support would become farmer-oriented, and integrated into the overall extension program.
- The EAB evaluation and action research component would be greatly strengthened and some expertise in that area would be provided to the regional sections.
- Effective feedback systems and communication networks would be developed.
- A pilot project would be established in one Agricultural Development Division to develop and test communication strategies and methodologies most appropriate for

Malawi. The pilot effort would be used as the springboard for expanding revitalized communication support programs to the other ADDs.

Ray concluded that Malawian agricultural officials--and particularly the EAB--are convinced that appropriate, farmer-oriented, effective mass communication strategies planned and carried out as integral parts of their agricultural programs are vital to continued agricultural progress and development in their country.

VI. Distance Learning in Lesotho

Lesotho Distance Teaching Centre (LDTC) activities are not specifically focused on agriculture. Nevertheless, much of its experience is relevant to the planning and operation of effective communication support programs in agricultural projects. Of particular interest are: the manner in which it has modified its programs on the basis of results from its research; its autonomy; and possibilities for adapting some of its distance learning techniques for farmer and extension staff training.

Wolff (1983) studied LDTC activities and performance during the period from its founding in 1974 through 1980. He concluded that its comparative success could be attributed to its autonomy, its dedication to the mandate of improving the life of rural people, and its willingness to engage in self-criticism. That study is summarized below.

A. Overview

The Lesotho Distance Teaching Centre (LDTC), founded in 1974 with assistance from the International Extension College of England, had five major programs at the time of the Wolff study: correspondence college, literacy and numeracy, basic rural education, radio programs for adults, and assistance to other agencies involved in non-formal education. It also maintained a research department to provide guidance and direction to those programs.

Among the Centre's distinguishing characteristics were its autonomy, its emphasis on selling its products (about one quarter of its income came from sale of booklets, payment for services to other agencies, and fees paid by private candidates), and its willingness to criticize its own work.

Although the investigator concluded that the LDTC was meeting its goals of improving the economic and social life of the Basotho in a modest way, he also identified some weaknesses. Perhaps the most critical were its failure to establish long term operational goals, and its excessive dispersion of effort.

B. Program description

The LDTC has attracted foreign technical assistance from numerous agencies, including the Irish, Dutch, American, Danish and British governments, UNICEF, and the World Bank. At the time of Wolff's study, it had four major functions:

- To assist private secondary school students through its role as a correspondence college.
- To provide practical skills to rural people through both print and radio programs.
- To assist other agencies involved in non-formal education.
- To develop and strengthen basic literacy and numeracy skills in youth and adults.

Wolff's findings concerning the types of activities in which the LDTC had engaged in carrying out these functions are described briefly below.

1. Research

A research department was established to provide information on which the Centre could base decisions concerning changes in program emphasis and strengthening existing programs. This department had developed simple, inexpensive methodologies designed to provide useful information at a reasonably low cost; and several major changes in LDTC programming had been based in large part on results of their studies.

As examples of such changes, Wolff reported that the LDTC had gradually reduced its resources devoted to the correspondence college, reduced its use of radio, and expanded its programs directed at improving the life of rural adults through the use of print media. Other changes made on the basis of feedback and research results are noted below in relation to each of the Centre's major program areas.

At the time of the study, personnel limitations were forcing the research department to concentrate its efforts on key research problem areas.

2. Correspondence college

The LDTC Correspondence College program included two major non-school components, a teacher's in-service education project and enrollment of students in the LDTC as private candidates for the junior secondary examination. According to Wolff, both appeared to be highly successful.

The teacher's in-service education project combined monthly meetings and vacation-time residential courses organized by the National Teacher Training College with correspondence study handled by the LDTC. It was reported that about 90 percent of the teachers enrolled were completing and more than 80 percent passing the final examination for each phase of this two phase program.

In the "private candidate" program, it was reported that the pass rate was higher than in the regular junior secondary schools and that the unit costs were lower.

3. Literacy and numeracy

The LDTC had supported literacy and numeracy programs since 1977 when a basic "literacy" package for adults was developed which utilized a set of educational games plus selected group leaders who received one day of training and a small honorarium. However, an evaluation of the program reportedly revealed a large number of dropouts and low utilization of the correspondence methodology. Consequently, the LDTC embarked on a "learning post" approach to literacy which involved a local teacher or community leader to provide leadership and liaison.

The Centre was also concentrating on strengthening the reading and literacy skills of newly literate school dropouts and adults with limited opportunity to retain their literacy skills. A four page newspaper supplement, initiated by the Centre in 1980, was distributed through monthly inserts in two church-controlled newspapers with these goals in mind. Private newspapers provided a ready-made distribution system in urban areas, but readership of the private newspapers was reportedly low in the rural areas.

Wolff reported that, although no formal evaluation of the newspaper supplement had been made at the time of his study, it appeared to be an effective means of reaching large numbers of the adult population at a relatively low cost. He also noted, however, that the articles appeared to be prepared without a clear development sequence in mind.

4. Basic rural education

The purpose of the LDTC Basic Rural Education Department was to provide practical information to rural adults which would enable them to improve their economic and social well-being. At the time of the study, the department was meeting this objective through the preparation of booklets on a variety of subjects which were sold at a subsidized price. By charging a small amount, The Centre provided an incentive to booksellers and had some assurance that its readers considered their investment of value.

It was reported that, in 1975-76, the LDTC realized that it had very limited resources to provide adults with practical information, and decided to initiate research on the use of the printed word in Lesotho. They found that the adult literacy rate was about 50 percent and that three quarters of the illiterates had some friend or relative who could read to them. It was also found that Basotho adults had difficulty understanding photographs and line drawings, which had to be kept very simple

and carefully pretested. The next step was to ask a sample of adults which information they needed to improve their life. With this information the booklet program was initiated.

An evaluation of one booklet, "How to Crochet", revealed that 90 percent of those who bought the booklet had read it. Overall, 24 percent of all buyers learned to crochet and another 25 percent, who already knew something about crocheting, learned something new. An analysis of the rate of return revealed that, although no data on use of the information were available, indications were that both "private" and "social" rates of return were highly positive.

Based on such evaluation studies, the LDTC was completing booklets on new topics and revising one booklet that proved to have little acceptance in its original form. It was also planning another study on target audience preferences for new booklets to establish its priorities for future production.

5. Radio

In 1974, the Centre initiated radio programs at the junior and senior certificate levels and a program to provide student advice. A 1976 survey revealed that only about 20 percent of the private candidates to whom the programs were directed listened to the programs, and audience surveys suggested that the general public had only minimal interest in them. As a result, the LDTC moved toward "open broadcasts" aimed at both the private candidates and the general public. At the time of the Wolff study, the LDTC was broadcasting three programs--"Human and Social Biology," "Sesotho Language," and "National Development." The author concluded that

> Despite a lack of evaluation information, the open radio broadcasts seem to be a cost-effective way of utilizing the LDTC's limited resources. . .However, as in the case of the newspaper supplement, the producers must spend most of their time finding usable material to meet tight schedules. It might be appropriate, therefore, to reduce the number of programs broadcast and t_ strengthen the quality of the remaining programs. <u>This would involve establishing long-term sequential objectives as well as appropriate research and feedback</u>. (Underlining added)

6. Service to other agencies

Although the LDTC had assisted other agencies from its inception, it decided in 1977 to establish a specific role as a service agency with programs to assist other non-formal education agencies. Wolff reported that,

> Based on its experience since 1977, the LDTC has found that its personnel need to spend much time assisting agencies to determine their specific needs and objectives, which at first are usually too vague for appropriate action by LDTC. In addition, the LDTC has found that many agencies lack the financial, professional and technical capacity to have an impact on rural Lesotho, despite very ambitious mandates. . .Since LDTC does not charge overhead, its assistance has drained its finances as well as its staff. In particular, the Centre's research department has been unable to evaluate the LDTC radio and newspaper supplement programs because all its efforts have been going into the UNICEF survey.

Thus, although activities in this program area were appropriate, they resulted in excessive demands on staff time and resources that jeopardized its other programs.

C. Autonomy of operation

Autonomy of operation, with which was associated a realistic budget structure, appears to have been another major factor in the success of the LDTC. From examination of LDTC income and expenditures, Wolff concluded that the Centre was organized and functioned as a form of private enterprise. He pointed out that:

> . . .about 75% of all income is in the form of grants and donations from the Government as well as from private and international agencies. 1979-80 was the first year in which the LDTC became an autonomous agency of the Ministry of Education and the government is now paying the salaries of more than half the LDTC staff. This support has enabled the LDTC to increase salaries and ensure that it retains qualified staff. The remaining 25% of LDTC's income comes from sale of booklets, payment for services to other agencies, and fees paid by private candidates. The "balance sheet" shows that the LDTC is organized as a kind of private enterprise. It includes the provision of funds for depreciation of printing and radio equipment and furniture. Salaries and wages account for only one-third of LDTC's expenses. Printing accounts for an additional one-third and the remaining costs are for maintenance, materials duplication, vehicle expenses, fees, and other running expenses.

The autonomy of operation that permits the sale of products produced with proceeds going back into the program and the balance in the budget are LDTC characteristics that should be of particular

relevance to planners seeking to develop and sustain efficient and effective communication support to agricultural projects.

D. Conclusions

The Lesotho Distance Teaching Centre has initiated a series of experiments since 1974 designed to measure how best to achieve its goals of improving the life of Basotho youth and adults. from his study of this program, Wolff concluded that:

- The LDTC has had some clear successes.
- As an autonomous agency, the LDTC functions in part like a private company. It is not dependent upon the government to determine line items; if its budget were cut it would be able to make its own decisions on which line items to expand or contract.
- The LDTC emphasizes "selling its product." If people don't read and use its booklets or listen to its radio programs, the Centre is willing to revise or even drop them.
- Its willingness to criticize its own work is the third key to LDTC's success. The small research unit is efficient, effective, uses sound research methodology, and has the support of top LDTC officials.
- The LDTC also has its problems and difficulties. It has never established long-term operational goals.
- The literacy/numeracy, basic rural education, and radio programming departments have operated separately. These departments could well be combined under a single assistant responsible for non-formal education who could assign personnel as needed to the various media programs.
- The LDTC appears to be dispersing its efforts excessively. It needs to examine its entire set of programs, reduce or eliminate some, and expand others. It should undertake new obligations only when it is assured of adequate long term human and financial resources.
- Despite its problems, "the LDTC is doing better than most other public and private agencies in Lesotho and is meeting its goals, albeit in a modest way, of improving the economic and social life of the Basotho."
- Overall, the LDTC offers a model worth replicating

187

in other developing countries.

In brief, key factors in the Lesotho Distance Teaching Centre's successes during the period covered by the study included: an extensive research program to guide development and evolution of program activities (the LDTC research department is analogous to the communication unit investigation/evaluation sections recommended in Parts One and Two); willingness to drop, add and/or modify programs based on the results of research studies; and autonomy in operation and distribution of expenditures within the budget. Problems that constrained LDTC progress and effectiveness included: failure to establish long term operational goals; over-compartmentalization of program areas; and excessive dispersion of staff and resources.

VII. Communication System for Rural Development in Mexico

The communication system developed by PRODERITH (Integrated Rural Development Program for the Humid Tropics) in Mexico shows how communication support can be integrated into a comprehensive rural development program. The basic strategies adopted by the communication unit to facilitate its implementation and achievement of its objectives, and the manner in which it relates to development program field staff, should be of particular interest to those responsible for developing communication strategies to provide effective support to agricultural projects.

The review of the PRODERITH communication system presented below is taken from Funes (1984).

A. Overview

A communication system, functioning through a central unit and rural communication subcenters, is an integral component of PRODERITH, Mexico's Integrated Rural Development Program for the Humid Tropics. The objectives of the communication system are clearly defined, and a series of basic strategies adopted early in the program have guided its implementation and continuing development. Key factors in the development of the system have been its decentralization of production and action into the subcenters, its emphasis on increasing the capability of field technicians as communicators, and its philosophy of promoting a situation of interaction and debate within the rural communities.

B. Background

An integrated rural development program for the humid tropics of Mexico was established within the Ministry of Agriculture and Hydraulic Resources in 1978. The program was funded through a World Bank loan, and technical cooperation was provided by FAO. In its first stage, the program covered 588,000 hectares in the states of Tamaulipas, Tabasco, Veracruz, Chiapas and Yucatan.

The program's goal was to work out and test, through practice, an integrated rural development methodology with which the country "might face the mid-term conquest of its most important agricultural frontier".

C. Communication System Description

In discussing the role of communication in the development process, Funes points out that interactions between peasants and the institution provide a framework for constant and systematic feedback which in turn defines the nature, scope and needed performance of the rural communication system. He then defines three levels of need and demand that the communication system must satisfy:

- The direct transfer of specific technical knowledge, and horizontal transfer of experiences among technicians working on very different projects having the common purpose of applying the same integrated rural development strategy.

- The realm of program relations at the national, regional and project levels with other agencies of the public sector or "bodies of a productive and/or social nature" which are in some way involved in carrying out the proposed actions (These relate primarily to increasing institutional coordination).

- The rural communication system's own internal needs.

The objectives, strategies, organization, components, and "instruments" of PRODERITH's rural communication system are summarized in Figure 3.

These strategies, developed to facilitate implementation of the communication system and achievement of its objectives, provided the conceptual framework within which the system was developed. Each is discussed briefly below.

Self-sufficiency in audiovisual production. "Self-sufficiency" is defined by PRODERITH as obtaining maximum internal operational control over the various specialized procedures which help to generate a communication output. Reasons cited for adopting this strategy included constraints associated with a public-type agency and the inconvenience of a dependency relationship with external agents.

Transference of application to field units of integrated technical assistance services. At first, the communication system staff went directly to the field with audiovisual productions. This was soon modified, however, as it could have resulted in overspecialization of the communication activity, overlapping of functions and, perhaps, competition with PRODERITH as a whole. Therefore, the strategy was changed, and emphasis was shifted to improving the communication capabilities of technicians in the field who had responsibility for providing technical and

190

OBJECTIVES

General: to contribute to evolution of PRODERITH and to the achievement of its goals.

Specific: to contribute in the process of methodologies generation for tropical rural development:

to promote peasants' participation in the development activities and process;

to contribute in the technologic and management innovation processes;

to support training activities for development technicians;

to support institutional coordination.

SYSTEM ORGANIZATION

Central Unit	Regional subunits
technical training	audiovisual production
audiovisual production	application
archives	maintenance
application	evaluation
maintenance	
graphics	
distribution	
evaluation	

STRATEGIES

- self-sufficiency in audiovisual production
- transference of application to field units of integrated technical assistance services
- users' participation in all steps and phases of communication process.
- no specialization of technical personnel
- permanent evaluation practices
- training during the work and in-service
- development step by step, following response capacity of the Programme as a whole.

COMPONENTS

- personnel
- methodologies
- equipment

INSTRUMENTS

- archives
- library
- video library
- computation
- statistics
- maintenance

Figure 3. PRODERITH'S rural communication system. (Funes 1984)

home economics assistance directly to the peasants.

Users' participation in all steps and phases of communication process. Appropriate mechanisms were established to ensure that users of the system--technical officials or farmers and their families--might participate in the decision-making process during the critical phases of production, application and evaluation.

No specialization of technical personnel. It was believed that conventional division of audiovisual and/or graphic production into different technical phases with corresponding specialization of personnel functions hinders technical personnel from being totally aware of the meaning and objectives of the production activities in which they are involved. The system therefore chose the strategy of non-specialization; communication system staff members are capable of working adequately and professionally in all its phases.

Permanent evaluation activities. Feedback to all its action levels through evaluation of inputs, processes, outputs and impact of communication media utilized permits timely adjustments to be made on the basis of adequate information.

Training during the work and in-service. Training needs of the system's own staff as well as other personnel involved in the application and evaluation stages are met through in-service training rather than through formal schooling alternatives.

Development step by step, following response capacity of the program as a whole. In keeping with PRODERITH's stage-by-stage development strategy, the communication system had to develop a design capable of growing from one stage to the other without deleterious effects on the equipment and other components used in the previous stage.

Funes reports that the system is presently concentrating on video which, among other media, guarantees high self-sufficiency. Other media such as still photography, slide sets, radio, and graphics are also being used for "specific and research purposes".

D. Organization

The communication system is organized into a central unit and rural communication subcenters. The central unit, under the General Coordinator of PRODERITH, has responsibility for personnel training--its own and the users'; audiovisual and graphic production; files; application; equipment and input storage; maintenance and technological design; publications; equipment and production distribution; and evaluation.

The central unit is directly linked with rural communication subcenters installed in each PRODERITH project which comprise an integral part of the methodological support team to the project. Functions of the subcenters, adapted to their level of participation, include: production (except electronic editing of educational videos); application; minor maintenance of available equipment; evaluation; and personnel training, particularly the training of field groups in the use of equipment, methodology and "supplementary instruments".

E. Target audiences

The objective population of the communication system is comprised of officials, technical personnel, farmers and rural families directly involved by the evolution of PRODERITH.

192

F. Products of the communication system

As described by Funes, the system delivers a combination of products and methodologies to PRODERITH, of which he considers those cited below as being the most important.

Audiovisual educational units, consisting of an audiovisual program, a notebook for the participant and a didactic aid. In every unit, each communication medium fulfills a function, since the basic idea is for the media to supplement each other.

Audiovisual programs. The system produces such programs as backup material for the management and operation of the General Coordination, for local organization of each project, or for some of the agencies involved with PRODERITH.

Publications, graphic productions for supplementing the audiovisual education units, for informing selected audiences of the program's characteristics and progress, and for use as backup in personnel training activities.

"A situation of debate within the rural communities". Rural communication is understood by the system to be a work aimed at creating the necessary conditions for meaningful dialogue, which implies a double effort of adjusting and drawing closer. The system has assumed that socially acceptable development depends in part on an exchange of ideas with the peasants involved who have knowledge which is not lacking in objectivity and efficiency in spite of its empirical origin, and who have a relative control over their resources. Dialogue between the technicians and communities is necessary, first, to enable the technicians to understand community projects and opinions and, second, to put technical proposals into a text that can be assimilated by the community. This dialogue is facilitated through "information cycles" consisting of a series of audiovisual educational unit application sessions, repeated until the total adult population in a PRODERITH project area has been covered.

G. Results

At present, as summarized by Funes,

> . . .The program is under way in 185 rural communities, with 28,314 families. More than 100 home economics projects are in evolution. As a whole, it is estimated that PRODERITH activities have generated more than 32,000 new permanent and paying jobs at the peasant level.

> Analyzing the economic aspects of the program, figures show that the I.R.R. [internal rate of return] is 19%, in comparison with the rate calculated in the feasibility studies, which was 13%. . .
>
> The rural communication system has played an important function within this complex framework of integrated rural development process. . .

Although the above summary of program accomplishments to date does not draw any conclusion about the specific impact of the communication support input as such, it does indicate a solid record of progress for the program as a whole.

VIII. Mass Media and Health Practices in Latin America and Africa
(From Rasmuson 1984)

The Mass Media and Health Practices Project (MMHP) is not an agricultural project, as is obvious from its title. It is appropriate to include MMHP in this series of reviews, however, as: some of the principles and concepts established in the Guatemalan Basic Village Education Project (see Section III above) were used in developing the MMHP design; and a number of the concepts and approaches developed by MMHP are highly relevant to projects in the agricultural sector.

The Mass Media and Health Practices Project, one of AID's major oral rehydration therapy initiatives, entered its fifth year (1984) with a record of solid achievement in the two original project sites, Honduras and The Gambia, and promising starts in three additional "diffusion sites"--Peru, Ecuador, and Swaziland.

Supported by the Offices of Health and Education of AID's Science and Technology Bureau, the MMHP Project has been implemented by the Academy for Educational Development and evaluated by the Institute for Communication Research at Stanford University.

The major goals of the Project have been:

(1) To strengthen the health education capacity of the cooperating countries through the systematic application of mass communication.

(2) To contribute significantly to the prevention and treatment of acute infant diarrhea, particularly through the promotion of oral rehydration therapy (ORT).

A. Public Communication Approach

MMHP has been an ambitious attempt to apply a public communication approach to the problem of diarrheal disease control. This approach attempts to change a particular set of behaviors affecting a specific problem in a large-scale target audience. Thus differing fundamentally from strategies which seek only to disseminate information or increase awareness, the public communication strategy has been applied in campaigns on topics as diverse as smoking, breastfeeding, energy conservation, seat belts, and population control.

Obviously, the MMHP project sites presented major differences of social and public health context which required situation-specific planning and implementation. For example:

- The rural target population in Honduras consisted of relatively homogeneous cultural groups living, however, in often isolated single homesteads. In The Gambia, by contrast, there were striking linguistic and cultural differences among more than five major ethnic groups, but rural people lived in villages of clustered compounds.

- The Gambian health system had severely limited central resources but, as a small country with a relatively extensive network of rural health workers and facilities, a significant potential for coverage of its rural population. Honduras had substantial central resources but a relatively limited rural outreach capability.

- In Honduras, the Project promoted a locally produced packet of oral rehydration salts (LITROSOL) for use at both home and clinic levels. In The Gambia, government policy determined that a simple sugar-salt solution be promoted for home use during diarrhea to prevent dehydration and UNICEF complete-formula packets be used in health centers for treatment of dehydration.

- In terms of the media environment, Gambia's single centralized government broadcast channel, which effectively reached only two-thirds of the country, contrasted with Honduras' multi-channel commercial broadcast system, which afforded excellent broadcast coverage. Rural Gambian women had a dramatically lower literacy rate than Honduran women--only about 3%--and print media were practically nonexistent at the village level.

The same communication planning methodology, however, was applied in each country to identify and implement effective, appropriate strategies. The key elements of this methodology are:

- The specification of clear, measurable behavioral objectives.

- A developmental investigation, using both quantitative and qualitative research methods, of existing knowledge, attitudes, and practices among target audiences to ensure that objectives and messages are appropriate.

- A campaign strategy which integrates mass media (radio, print/graphic materials) and face-to-face channels (such as health workers) to achieve maximum impact.

- A systematic process of campaign materials development and pre-testing to ensure they are accurate, comprehensible, attractive, and culturally appropriate.

- A system of monitoring and formative evaluation which indicates if and how the campaign elements are working and suggests necessary mid-course corrections.

146

B. Project Results

Stanford University is continuing its analysis of MMHP Project impact data from Honduras and The Gambia. Already, however, the following positive results have been reported:

In Honduras:

- After one year, 48% of women reported having used Litrosol (the local ORT packet) to treat diarrhea at least once.
- During the same period, recognition of Litrosol as a diarrheal remedy rose from 0% to 93% of the population.
- Of those reporting to use Litrosol:
  - Over 90% could mix it properly, and
  - 60% gave the correct recommended daily amount.
- Diarrhea-related mortality in children under two dropped by 40% within 18 months.

In The Gambia

- After eight months of the campaign, 66% of mothers knew the correct home mix oral rehydration formula being promoted.
- 47% of mothers reported having used the home formula to treat their child's diarrhea.
- During an intensive four week period in October 1982, 11,000 rural women attended 72 village sugar/salt mixing contests; 6,500 women actually mixed the solution during these contests.
- Following a 1983 mini-campaign on feeding during diarrhea, more than 50% of mothers reported giving solid foods to their child during diarrhea, a four-fold increase from the previous year.

Stanford's first evaluation reports concluded:

> The overall picture that emerges of the project in Honduras is one of an intensive, well integrated campaign that is achieving impressive successes in teaching people health information and getting them to change specific behaviors related to infant diarrhea.
>
> The overall portrait of the campaign at the end of

the first year in The Gambia is one of an intense level of activity that has become highly salient for rural Gambians. The campaign and the recognitions it has received have produced impressively high levels of awareness and behavioral change in the population in a relatively short time.

C. The Diffusion of MMHP

The last year has seen a widespread diffusion of the findings and experience of the MMHP Project to other sectors and countries. This process is reflected in the following developments:

- The initial MMHP ORT campaign activities were concluded in Honduras in March 1983. Project staff continue to work there under two amendments to the MMHP contract requested by the Ministry of Health and USAID Mission. These amendments provide assistance to the Ministry's nationwide diarrhea control program and to its water and sanitation and primary health care programs. Using many of the same techniques developed by the original diarrhea campaign, these programs are further institutionalizing the application of communication planning to the promotion of more positive health practices in the areas of immunization, malaria control, family planning, and water sanitation.

- Prior to the departure of Project staff from the Gambia in May 1984, the Project was visited by interested health officials from a number of other African countries, including Sierra Leone, Liberia, Nigeria, Botswana, Niger, and Senegal. Project staff assisted the USAID Mission in Senegal in planning an ORT component modeled after the Gambia experience to be added to Senegal's USAID-funded primary health care project.

- Agreements were signed with the governments of Ecuador, Peru, and Swaziland in June 1983, September 1983, and February 1984, respectively, to receive technical assistance under the MMHP Project to apply the Project's methodology and experience to their own programs of diarrheal disease control.

- During the PRITECH Project's first year of operations, more than 10 countries worldwide have requested PRITECH assistance in planning communications support for oral rehydration or immunization programs.

These developments reflect a rapidly increasing awareness of the capacity, demonstrated by the Mass Media and Health Practices Project, of a carefully planned public communications strategy to significantly enhance the performance and results of ORT and other public health programs.

IX. Summary of Lessons Learned about Communication Support

The incorporation of well-planned and appropriate communication strategies and support into extension programs is a key element of the "hybrid" extension model for today suggested in Section II above. Planners and implementers of the six projects/programs reviewed in Sections III-VIII recognized this need, and strong communication components were built into each.

All of these projects have benefited from that strong communication input although some have been more successful than others in developing effective communication strategies and integrating them into the project/program as a whole. Valuable lessons about how to plan and provide effective communication support can be learned from both their successes and their failures.

Some of the significant lessons learned from the collective experience of these projects/programs (also cited in Part Two, Section VI, as characteristics of successful communication strategies) include:

- Communication support can be effective only if the necessary conditions for change are present or can be arranged--such as appropriate technology, required inputs, markets, appropriate price policies, etc.).

- Specification of clear behavioral objectives is the first essential step for developing an appropriate communication strategy.

- Communication-related (developmental) investigation is required to determine the characteristics of the target audience to ensure that messages, media and presentations are appropriate and acceptable to that audience.

- Seldom, if ever, can mass media replace staff in the field. Appropriately used, however, mass media can greatly increase field staff effectiveness and coverage of the target population, thus significantly increasing total program impact.

- Careful planning and implementation, done in concert with project managers and their staffs and with the support of relevant authorities, is critical to the success of the communication system in supporting the total program.

- Frequent feedback from the target audience, systematically obtained and distributed promptly to all action levels,

is essential to the success of both the communication support program and the program as a whole in achieving the specified behavioral objectives. Since feedback is of little value unless it is used, willingness of project administrators and staff to modify, drop or add activities for which feedback reveals the need is essential.

- Messages and media presentations must be localized to adjust to local conditions and the needs and desires of the target audience.

- Seldom can the communication system meet all demands placed upon it--priorities must be established and followed if the quality of the program is to be maintained.

- The need for continuing job-oriented training and staff development cannot be overemphasized. Training of field staff as communicators is critically important.

- Multimedia communication support programs in which the various media are mutually reinforcing can significantly increase the impact of communication support. Under some circumstances, multimedia contact is essential.

- Effective communication cannot be achieved without cost. Decisions must be made as to the most appropriate distribution of resources among communication support and other components of the project.

- Special skills are required that must be either "bought" or "taught".

- Political support for the communication system is essential, both to obtain the needed resources and to avoid dilution of the communication effort by diverting resources for other purposes.

- Unless communication staff are fully involved in the total program planning process, there is serious risk that the communication system will become simply a service unit that responds in an ad hoc manner to requests for production of this or that material. If that occurs, there may be a productive media production unit, but there will be no viable communication support program.

- Close coordination within the communication component and between communication and other project components and collaborating institutions, and careful monitoring of project activities and progress, are essential to effective communication support.

These "lessons" have relevance for many types of projects in agriculture--and in other sectors--under a wide range of settings and conditions. Their application in planning and implementing such projects will help to assure that communication support will be appropriate to the situation and will contribute significantly to achievement of project goals and purposes.

Step by step suggestions for planning and implementing effective communication support are presented in Part One, Guidelines for incorporating communication strategies into agricultural development programs. The principles and processes underlying the Guidelines are discussed in Part Two, Agricultural Communication in the Context of Agricultural Development Programs. Literature citations to which reference is made in this volume, Part Three, are included in Section VIII of Part Two. Parts Two and Three are available in separate volumes.