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Communication for Technology Transfer in Agriculture

(AID/S&T Project 936-5826)
(Contract No. DPE-5826-C-00-5054-00)

Implementation Plan

for

Jordan Project

August, 1987

In Cooperation With:

The National Center for
Agricultural Research
and Technology Transfer
(NCARTT)

Deir Alla Research
Station

Radio/TV Jordan

The University of
Jordan Faculty of
Agriculture

The Jordan Valley Farmers
Association

Highland Agricultural
Development Project

Jordan Valley Agricultural
Services Project

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Executive Summary

Communication for Technology Transfer in Agriculture

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The Communication for Technology Transfer in Agriculture (CTTA) Project is designed to apply what is known about communications and to develop innovative approaches to the use of communications, especially mass media, to reinforce agricultural extension. Integrated communication strategies to improve the performance of agricultural extension in Jordan will be synthesized from: 1) experience gained around the world in the use of communication in agriculture and in other sectors such as health and education; 2) advances in development communication; 3) concepts from fields such as behavioral science and social marketing, and 4) lessons learned from previous agricultural communication activities undertaken in Jordan.

Authorization for the CTTA Project to provide technical services will be established through a Letter of Understanding between the Ministry of Agriculture of Jordan (with NCARTT) and USAID/Jordan.

In April, 1987, a three-person team was fielded in Jordan to prepare a preliminary design for the project. The team concluded that Jordan's rapidly-changing agricultural situation, along with an improving research and extension base, provided an excellent base from which to build an agricultural communications project.

The CTTA project works as much as possible through existing extension and communication channels, seeking to strengthen the ability of Jordanian institutions to conduct systematic and effective agricultural communication activities. The long term CTTA communication specialist and short term advisers with the project would focus on helping train staff and coordinate project activities.

Because of this approach, it is essential that full-time counterparts be assigned to project work in both the extension division and the agricultural information office. A list of the responsibilities of each full-time counterpart is provided as Appendix 1 to this Plan. Project funds will place a full time CTTA communication specialist to be located at the Extension Division of NCARTT for the first 15 months of the Project. Following that time, counterparts will assume Project supervisory and implementation duties for the next seven months. The long term communications specialist will return to Jordan for a three-month short term consultancy to assist in assessment and Project close-out activities.

The Project will undertake activities in two pilot sites in Jordan, one in the Jordan Valley and a second in the Highland region. In each case, a systematic approach -- with appropriate training -- will be utilized following a 13-step iterative procedure. The steps include: 1) investigation of appropriate technical agricultural practices, farmer information use, social and cultural constraints, and Jordan's media system; 2) Strategy Development of a systematic plan for the messages to be communicated to farmers, the channels to be used, and the level of sequencing and repetition needed; 3) Testing of representative messages to ensure that farmers understand them and that they arrive at an appropriate time when farmers are most receptive; 4) Production of messages so that they are available when needed for radio, TV, printed media, and extension materials; 5) Delivery of messages to meet media and extension deadlines and thus maximize the possibility of use; 6) Study Reception of messages to ensure their effectiveness; 7) Formative Evaluation when messages are communicated to test whether or not they are having the desired impacts, and revise them as needed; 8) Summative Evaluation to examine overall project effectiveness both in communicating and changing farmer behavior; 9) Feedback and Monitoring to check that media messages are transmitted when arranged, and that there is coordination among messages in the many channels used; 10) Staff training and development both in communication planning and specific media production skills; 11) Interinstitutional coordination, collaboration and networking between the many public, semi-public and private sector institutions working with farmers; 12) Project Management training for counterparts so that they can assume supervisory duties in the project's second year and after the project is completed; 13) Institutionalization of the capacity for communication investigation, planning, production, and evaluation at participating units and more broadly in Jordan.

Project activity will begin in October with the arrival of the long term communication specialist. Counterparts in extension and the information unit would need to be identified at that time. Initial focus would be on the Jordan Valley, where a focused and short-term communication effort would be undertaken in the first year of the project. This activity would take advantage of the remaining time of the JVASP Project, and would also build on the research and extension training available as a result of that project. Because of the location of the Deir Alla station and its somewhat independent organizational status in relation to NCARTT, it will be necessary that a counterpart (25% time) be designated at Deir Alla to help coordinate the CTTA pilot activity there. The Jordan Valley Pilot will permit extension and information unit staff to receive training and experience in a full cycle of communication activity, yet it will be a somewhat shortened and focused effort.

As accomplishments are made in the Jordan Valley Pilot and stages of the process mastered, similar activities will begin for the more extensive and long-term Highland region pilot

project. This project is more complex in part because of the different agricultural conditions in the Highland zone, and because of differential access to inputs and equipment.

Jordanian counterparts will play a key role in the implementation of the Highland pilot. The long term communications specialist will return to Jordan for the final three months of the project, and will assist in final assessment activities for the Highland Project.

A project priority is to capture lessons learned from the pilot activity and institutionalize these lessons at NCARTT and in other institutions in Jordan. Results will also be transmitted worldwide via the CTTA's network.

A summative evaluation will be undertaken before, during, and after the project to assess overall communication effectiveness in terms of information delivery, understanding on the part of farmers, and overall impact on agricultural production.

The Project provides a long term communications specialist for the first 15 months of the two-year project, and for the last three months. An additional 7 months of short-term trainers and consultants is also provided. The Project provides a vehicle for the long term communication specialist, plus a modest amount for office equipment.

Limited additional funding is available for communications equipment (a maximum of \$5,000) and for innovative communication activities to be undertaken in the pilot zones (a maximum of \$5,000 each year). The Project also provides some funds for field assessment activities. Limited and frequent field studies, rather than large-scale surveys, will be undertaken.

Success of the Project overall will depend on the extent to which a number of crucial agricultural research, extension, and information units are able to work together effectively. Success will also be dependent on receipt of sufficient institutional support to permit adequate materials production for efforts in the two pilot zones.

In conclusion, the Project seeks to build on the substantial agricultural research, extension and communication base which now exists in Jordan, in order to develop the systematic capacity on the part of Jordanians to continue these efforts and expand them into other zones at the conclusion of the project.

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**Project Implementation Plan (IP)
for
Communication for Technology Transfer in Agriculture (CTTA)**

I. Overview

The Communication for Technology Transfer in Agriculture (CTTA) Project is designed to apply what is known about communications and to develop innovative approaches to the use of communications, especially mass media, to reinforce agricultural extension. Integrated communication strategies to improve the performance of agricultural extension in Jordan will be synthesized from: 1) experience gained around the world in the use of communication in agriculture and in other sectors such as health and education; 2) advances in development communication; 3) concepts from fields such as behavioral science and social marketing, and 4) lessons learned from previous agricultural communication activities undertaken in Jordan. The CTTA strategy will focus on development and use of:

- * farmer feedback and institutional networking;
- * specific farmer practices and behaviors;
- * a communication system that integrates broadcast, print and interpersonal channels; and
- * communication support programs that can be continued in Jordan after the project is completed.

CTTA will collaborate with United States Agency for International Development (USAID) Mission projects in up to nine countries during the life of the project. In Jordan, the CTTA project will function in close collaboration with the Ministry of Agriculture (MOA) through the National Center for Agricultural Research and Technology Transfer (NCARTT). Technical assistance will be provided by the Academy for Educational Development (AED), CTTA Project Coordinator, through its headquarters and collaborating universities and agencies.

Authorization for the CTTA Project to provide technical services will be established through a Letter of Understanding between the Ministry of Agriculture of Jordan (with NCARTT) and USAID/Jordan.

II. Background

Agricultural research, extension and production activities in Jordan have undergone significant change in a number of areas. The transformation of the Jordan Valley into an intensively farmed region using plastic houses and drip irrigation to produce vegetables and fruits for Jordan and for export illustrates the

magnitude of change. Greater emphasis on cereal production is also a priority, with its focus in the highland areas near Irbid and Ramtha. And efforts are being made to introduce peach, pear and other fruit trees in addition to the more traditional olive production in the country.

In response to these developments and goals, much consideration has been given to examining the possible role of the public sector in supporting agricultural research and extension activities directly, and in cooperating with, coordinating, and regulating activities of the private sector. These considerations culminated in 1986 with a decision to create a National Center for Agricultural Research and Technology Transfer (NCARTT), which is designed to operate with some degree of autonomy from the Ministry of Agriculture. The establishment of the center offers the opportunity to pull together and coordinate the activities of research and extension. It has also created a significant opportunity for improving the country's agricultural communication system.

Improvements in communication with farmers, and between extension and research, depend in large measure on the presence of something meaningful to communicate, as well as efforts to organize the communication process. Two ongoing USAID projects, plus efforts of a number of other donors and the private sector, have laid an excellent base to support a communications project. USAID's Jordan Valley Agricultural Services Project (JVASP), which began in the valley in 1980, has focused on improving the research system, and has also placed great emphasis on regular training of extension agents in the valley. In addition, it pioneered development of biological control methods for the many insect pests present in the valley, and set up a computerized data system for monitoring problems and success on individual farms, for specific crops, and for the region as a whole. Extension agents were recently each given their own self-drive vehicle to improve their ability to contact and work with farmers.

A second USAID project, the Highland Agricultural Development Project (HADP), was begun in 1986 to help create and coordinate activities of the National Center (NCARTT) as well as improve the process of technology transfer in the agricultural system. The project emphasizes farming systems and a systematic commodity/resource analysis and development system to help focus research and extension resources on key farm problems. This five-year project involves extensive training and networking activities, and seeks to unify and coordinate the research and extension subsystems. Other projects now under way in Jordan include one supported by the German government to support the identification, multiplication and diffusion of wheat and barley varieties to farmers. Also emphasized has been the development of an entire package of practices to be used in combination with the new varieties, including fertilizer, spraying, soil preparation, drill planting, and combine harvesting. These activities are coordinated through the Jordan Cooperative

Organization (JCO).

The presence of these projects and other changes in research and extension have created the preconditions necessary for a successful communication project, one designed to systematically communicate to farmers information about how to utilize these new pretested and validated technologies on their farms. Supporting the agricultural technologies are a number of channels for delivering information, including Radio/TV Jordan, which has been broadcasting radio agricultural programming since 1959, the Agricultural Information Unit located at NCARTT, the University of Jordan, which has been training students in extension methodologies and conducting research, and a number of actors in the private sector.

Jordan's agriculture is undergoing a period of rapid change, caused by the closing of many of its traditional markets for export food crops, the development of alternative markets and crops, the increased desire to maintain a measure of food security, and rapid introduction of new agricultural technologies. Communication projects have the potential to make a substantial contribution under these conditions.

Specific areas of the agricultural communication process in Jordan with great potential for improvement include:

1. Improving feedback on farm needs from farmers to extension, research, and policy makers;
2. Segmenting farm audiences for communication messages according to type of crop, geographic region, rainfall and soil conditions, access to roads, and use of various mass and interpersonal communication media;
3. Development of research-based educational and behaviorally-oriented messages for farmers designed to overcome key production and marketing constraints;
4. Improving coordination between the various media and public/private sector agencies providing information for farmers. Although there are only 50 extension agents in the country at present, there are more than 100 private sector and semi-public sector ag information delivery agents. And there are additional opportunities for utilizing Jordan's agricultural radio/TV systematically with interpersonal and print media efforts to communicate messages to farmers;
5. Development of a low-cost continuous monitoring system to assess agricultural message effectiveness.

In April, 1987, after discussion with contract manager Anthony J. Meyer, Development Communication Specialist, AID/S&T/ED; Howard E. Ray, CTTA Project Director, Academy for Educational

Development; and Randall Cummings, Agricultural Development Officer, USAID/Jordan; a three person team (Eric A. Abbott, Iowa State University; John Woods, INTERPAKS-Illinois; George Abawi, Cornell University) visited Jordan to develop a preliminary design for a CTTA project. The team presented a report strongly recommending the implementation of a project in Jordan on April 21. Following further discussion and several changes in the proposed budget, it was decided to proceed with the development of an implementation plan and a letter of understanding in August, 1987. Approval of both of these is necessary before a long term CTTA communication adviser can be located in Jordan.

III. Authorizing Mandate

The authorizing mandate for the project is Contract No. DPE 5826-C-00-5054-00 between the United States Agency for International Development and the Academy for Educational Development. A letter of understanding between Jordan's Ministry of Agriculture and the National Center for Agricultural Research and Technology Transfer, and the United States Agency for International Development has been developed which delineates the purpose, activities, inputs and responsibilities of all parties involved in the CTTA project.

IV. Participating Institutions and Projects

A number of Jordanian institutions and external donor assistance projects are involved in the process of agricultural communication with farmers. It is important that the CTTA Project coordinate with them in order to take advantage of all channels to reach farmers.

A. Ministry of Agriculture

1. The Ministry of Agriculture central office has overall responsibility for approval of the strategic and planning aspects of the project in both the Highland and Jordan Valley regions.

2. The National Center for Agricultural Research and Technology Transfer (NCARTT) located at Baqa will be the administrative site of the project. The long term CTTA communications specialist will be located there in the extension division, and the project will coordinate its media planning, extension communication training, field investigation, and other activities through NCARTT. NCARTT staff will be especially involved in the pilot zone for the project located in the Highland region.

Because the project will require extensive planning, training,

and information delivery services through extension, and because the ability of project functions to continue during the second year and after project completion is of key importance, a full-time counterpart in the extension division should be named to work with the long term CTTA communications specialist. The responsibilities of this counterpart are specified in the accompanying letter of understanding, and are also contained in Appendix 1 of this plan.

3. The Jordan Valley Deir Alla Station currently enjoys project status because of its association with the Jordan Valley Agricultural Services Project. Because of this status, which will continue until at least March 1, 1988, the station operates somewhat independently of NCARTT through the Special Projects Director. Thus, for the pilot zone located in the Jordan Valley, special coordination with Deir Alla will be essential. Station staff will participate in site selection, audience analysis, media development, and implementation aspects of the pilot project in the valley.

Because of the distance between NCARTT and Deir Alla, and because of Deir Alla's independent status, a part-time (25 percent) counterpart person should be selected there to help coordinate field CTTA activities. This individual should have some background in extension delivery, training, and communication. The person should also be authorized to make necessary logistical arrangements for CTTA activities with approval from the director of the Deir Alla Station.

4. The Agricultural Information Unit is located at Baqa, but is administratively under the Special Projects Director. Close cooperation will be essential with this unit for the production of media materials, training activities, and audience assessment. The project will use the existing production system for printed materials, and will utilize video equipment available through the Information Unit, the Extension Division of NCARTT, or Jordan Radio/TV.

A key focus of the project is the strengthening of the ability of the Agricultural Information Unit to systematically produce and deliver media messages in coordination with extension, Radio/TV Jordan, and other units. Such strengthening will require significant activity over the contract period. Therefore, it is essential that a full-time counterpart be designated at the Information Unit to work with the long term CTTA Communications Specialist. The responsibilities of this individual are specified in the Letter of Understanding, and are also contained in Appendix 1.

B. External Donor Assistance Projects

Two projects in Jordan currently are operating under USAID/Jordan sponsorship which will be closely coordinated with CTTA Project activities. USAID has helped provide planning and coordination

assistance to ensure that these projects build Jordan's agricultural research and extension capabilities in a systematic fashion. CTTA, like the other two projects, will plan and implement its activities in Jordan with the approval of USAID/Jordan.

1. The Highland Agricultural Development Project (HADP), located at NCARTT, is being implemented by CID/Washington State University. The project is crucial to the success of the CTTA effort because it is carrying out essential agricultural field assessment activities, extension and research training activities, and is developing a socio-economic analysis unit. The CTTA Project is designed to build directly from the HADP Project, and complement its goals. CID/Washington State HADP staff--with NCARTT staff-- would be directly involved in the process of selection of the pilot zones, technical recommendations, and extension coordination with project activities.

2. The Jordan Valley Agricultural Services Project (JVASP) is nearing the completion of its five-year life under implementation by CID/Washington State University. The project has greatly strengthened the research and extension capabilities of the Deir Alla Station in the Jordan Valley, and specifically has provided self-drive vehicles, VCR players in extension offices, technical and extension training, and publications production services. These activities have built a strong base upon which the CTTA Project can build for the pilot project in the valley. Deir Alla and JVASP staff will be heavily involved in the selection of the pilot zone, the technical recommendation to be implemented, and all aspects of media planning and production. In addition, the project will coordinate extension delivery services and training through the JVASP and the Deir Alla Station staff.

C. Radio/TV Jordan

Jordan's agricultural radio and television department has indicated its willingness to cooperate not only in providing video and radio coverage of some project activities, but in helping to devise a media strategy. In return, the station has requested assistance in training young agricultural staff in scriptwriting for radio and television and in interviewing techniques.

D. Other Collaborating Institutions

1. The University of Jordan Faculty of Agriculture has undertaken significant studies in the area of farmer adoption of agricultural technologies, and in farmer use of media. Staff have indicated their willingness to cooperate with the Project in its Training, Field Assessment, and Media Design and Implementation Activities.

2. The Jordan Valley Farmers Association (JVFA) operates

through 33 farmer councils in the Jordan Valley, and has 8 extension workers on its own staff. It cooperates with the staff at Deir Alla Station, and extension staff sometimes serve as secretaries to the farmer councils. This organization offers an opportunity to extend extension and media delivery activities beyond regular extension channels, and thereby multiply message impact. JVFA staff have indicated interest in cooperating with the Project.

3. Jordan's Agricultural Credit Corporation (ACC) and Jordan Cooperative Organization (JCO) both offer services to farmers. The ACC handles credit requests, and the JCO offers custom planting and harvesting services, in addition to grain storage, and multiplication activities. Because these organizations have an extensive network of contacts with farmers, they offer additional coordination opportunities for delivery of services. The Friedrich Naumann Foundation has been attached to the JCO for several years, and has been producing video for Radio/TV Jordan as well as contract video services for the JVASP. Additional collaboration with the Naumann Foundation would be possible.

V. Description of CTTA Pilot Projects

A. Purpose and Objectives

The broad purpose of CTTA activities in Jordan through its two pilot projects will be to assist the Ministry of Agriculture, its National Center, and Special Project units to develop, test, and apply a more effective methodology for the integrated use of mass media and interpersonal channels to obtain widespread adoption of new and/or underutilized agricultural practices that will benefit Jordanian farm families. Improving coordination between the various research, extension, and communication institutions is also important.

Within this broad purpose, specific CTTA objectives include:

1. Identify and strengthen all available Jordan communication channels which can be utilized in delivering messages to farmers; these include extension visits, field days, radio, TV, printed materials, and other techniques. Multiplicity of channels should be stressed;

2. Improve linkages between research, extension, and information units, on the one hand, and intermediary organizations such as JCO, ACC, and JVFA, on the other, in order to achieve maximum communication effectiveness.

3. Identify the most appropriate sequencing and repetition of messages in order that each information channel reaches its level of maximum effectiveness;

4. Monitor farmers' needs and practices and the impact communication messages have on those needs and practices;

5. Train and advise Jordanian counterparts in extension and the agricultural information unit in agricultural communication techniques and strategies (e.g. communication planning, coordination, and monitoring of communication messages). Among those to be trained are personnel from Jordan Radio/TV, extension, and the Agricultural Information Unit.

6. Develop effective linkages for communication between extension, research, agricultural information units, radio/TV Jordan, and other communication channels.

B. Methodology Overview

The methodology to be developed and tested by CTTA in Jordan's two pilot project sites (and worldwide) consists of an iterative 13-component process for systematic development and implementation of communication strategies that help technology development and transfer systems respond to the needs of farmers. These components are not necessarily sequential in terms of

action required. They are highly interrelated and will be part of a continuous process of investigation, action, formative evaluation, monitoring, and adjustment that requires involvement of extension, research and others in addition to the communication staff. Project attention will first be focused on the Jordan Valley pilot site, since recent research and extension training, plus strengthening of extension delivery capabilities, have prepared that site for communication project activities. Following implementation of the project at the first site, attention will be focused on the second site in the Highland region, where HADP is completing an extensive program of identification of farmer constraints, extension training, and other support work which will provide a base for the CTTA second pilot zone activity. The specific proposed timetable for activity is presented in Section IX.

Because a basic element of the CTTA strategy is development of communication support programs that Jordan can continue after the project is completed, CTTA will function within existing institutions as outlined in Section IV. The project will provide only the minimum technical assistance required to train and work with staff of Jordan's extension and communication institutions in planning and implementing the 13-component process -- with emphasis on in-service and on-the-job training.

The CTTA components to be utilized in the two pilot sites will now be presented. They are:

1. INVESTIGATION

The communication process will begin by identifying available agricultural technologies and studying farmers and rural families in both pilot site regions. Through technical committees at NCARTT, research reports and results at the Deir Alla Station, and results of field interviews of farmer constraints and practices now being undertaken as a part of the HADP project, a number of promising new or underutilized agricultural technologies are being identified. The final selection of a pilot site for the Jordan Valley and for the Highland area will be dependent on these technical findings. A number of promising technologies are discussed later in this Implementation Plan.

Since a continuing supply of appropriate, locally-adapted technologies is essential to communication program success, a key part of the technology identification process is to determine the stage of readiness for diffusion of available technologies -- from the perspectives of research technical recommendations, availability of needed inputs and equipment, and market incentives or disincentives.

The next step is to assess those technologies from farmers' perspectives -- perceived dependability; economic benefit; risk; similarity to present practices; practicality, considering farmers' resource constraints; and possible negative consequences of not adopting.

Knowledge and understanding of the farmers are also needed. CTTA uses various research techniques (collectively termed developmental investigation) to learn more about farmers' and rural families':

- *cultural and social characteristics,
- *vocabulary,
- *ways of receiving and using new information,
- *practices and adoption levels,
- *hidden constraints that may be encountered in trying an innovation,
- *variability.

Behavioral analysis, social marketing, anthropology, and other social sciences are used extensively in obtaining and interpreting these types of information. Some of this information will soon be available as a result of studies being carried out by the Faculty of Agriculture of the University of Jordan. Assistance from the Faculty of Agriculture and Faculty of Foreign Languages may be sought in further assessing farmer understanding of vocabulary and messages.

2. STRATEGY

The CTTA communication strategy is based on the assessment of available agricultural technologies, and an understanding of farmers' need and understanding of media as ascertained in the first step above. Strategy development involves:

- *determining message content and defining the behavioral framework;
- *defining and segmenting the farmer audience (segmentation is likely to be necessary on the basis of education, place of residence, present technological capability, rainfall, and other factors);
- *selecting mutually reinforcing channels for delivering information (including extension, radio, TV, and print media);
- *developing a system for coordinated message development, pretesting, timely production and delivery of farmer-oriented information through the selected channels, formative evaluation, and feedback.

Strategy implementation will be accomplished by means of a Project Steering Committee consisting of the CTTA long term communications specialist, the CTTA counterpart from the extension division, the CTTA counterpart from the agricultural information unit, a technical representative from the agricultural recommendation area, and the ag directorate from each of the two pilot zones.

Strategy development incorporates concepts from extension, development communication, social marketing, and instructional

design; and experience from other communication projects in agriculture, health and education.

3. TESTING

Preliminary strategies, messages and media materials are field tested to ascertain their effectiveness in transferring information to farmers. Since a goal of the project is to work through supplementary institutions such as the JVFA, JCO, ACC, etc., testing of materials which might be made available through these intermediary organizations is also important.

A regular system of checking messages before they are used and immediately after use is a key part of the CTTA formative evaluation strategy. This permits adaptation and correction at early project stages and provides essential feedback to message production units.

Principles and methods from social marketing and the behavioral sciences are integrated with those of agricultural extension and communication in this testing phase.

4. PRODUCTION

Key elements in producing information materials that serve the program and its audience are:

- *detailed production schedules, rigorously followed;
- *close coordination among those responsible for message development, materials planning and production, formative evaluation, and feedback;
- *careful checks on content accuracy and production quality;
- *systematic pretesting of representative materials;
- *prompt response to formative evaluation results and feedback.

A media plan will be developed specifying when each message should be delivered to farmers or intermediary organizations, and will establish the necessary lead time to assure that the deadlines can be met. The plan will also specify the anticipated staff time necessary for message development, testing, and production. This plan will be the responsibility of the agricultural information unit counterpart to the CTTA project, and will be approved by the Project Steering Committee as well as the director of the Agricultural Information Unit. A similar plan will be developed for extension agent field activity and message delivery by the extension counterpart to the project, with approval by the Steering Committee and Extension Director.

Continual interaction (networking) with those involved in other areas of the technology development and transfer system, also

critically important, is carefully nurtured and maintained.

5. DELIVERY

The multi-channel strategy includes timely delivery of information targeted to specific audience segments -- as well as general information disseminated more broadly -- through mass media, interpersonal communication and other relevant channels.

Public sector channels such as extension agents, Radio/TV Jordan, and extension publications are used to the maximum possible extent. Semi-public and non-governmental organizations will be important secondary channels through which farmers can be reached. Private sector channels such as newspapers, commercial agricultural companies, etc. will also be used where appropriate.

6. RECEPTION

The ultimate success of CTTA depends upon the extent to which farmer adoption of new or presently underutilized agricultural technologies increases as the result of effective communication support to extension and other technology transfer programs.

7. FORMATIVE EVALUATION

In CTTA, formative evaluation includes studies carried out as part of project implementation to determine if the messages disseminated to farmers have been timely, well-received, understood, and considered to be practical; and whether the various program elements are functioning as planned. A great advantage of formative evaluation is that it provides early feedback on message effectiveness so that changes can be made if necessary.

This will involve examination of messages produced through the agricultural information unit, extension field agent activity, materials delivered via Radio/TV Jordan, and the use of intermediary organizations such as the JVFA, JCO, etc.

Methods and techniques used in strategy development -- collectively called developmental investigation -- are also used extensively in formative evaluation studies.

8. SUMMATIVE EVALUATION

Summative evaluation proceeds concurrently with project

implementation. Although the summative evaluation is independent of implementation, evaluation and implementation staff work in close coordination.

Both the formative and summative evaluations from the first pilot zone in the Jordan Valley will become part of a "lessons-learned" cumulative report used to guide the planning and implementation activities in the Highland zone.

9. FEEDBACK AND ONGOING MONITORING

Communication programs must have the capacity and flexibility to respond promptly and appropriately to unanticipated situations.

CTTA uses systematic feedback and networking -- with farmers, researchers, extensionists, policymakers, input suppliers, and other private and public sector institutions and organizations -- to maintain the multi-directional flow of information essential for these purposes.

Since the project in Jordan will use many channels, it will be important that each channel be monitored to ensure that messages are delivered in a timely and correct fashion. Responsibility for monitoring extension delivery will rest with the CTTA extension counterpart. Responsibility for print and broadcast media monitoring will rest with the agricultural information unit counterpart.

10. STAFF TRAINING AND DEVELOPMENT

CTTA emphasizes training at all levels for both project staff and public and private sector staff who are channels to reach the farmers.

11. INTERINSTITUTIONAL COORDINATION, COLLABORATION, NETWORKING

Because Jordan has a number of effective and well-established media systems -- both in print and broadcast -- plus a number of organized semi-public and non-governmental units working with farmers, a key component of the CTTA strategy is to develop effective methods of networking and coordinating project activities with these media delivery units.

This will be accomplished in part by involving these entities in Project Steering Committee activities, and in part by meetings and seminars.

12. PROJECT MANAGEMENT

If the approach developed by the CTTA Project is to be continued after the project is completed, it is important that the two principal counterparts to the project be actively involved in the development and operation of the project management system. For this reason, specific components of management have been listed as responsibilities for each of the counterparts (See Appendix 1).

It must be emphasized that one of the most important aspects of CTTA Project involvement is the development of a systematic management plan for designing and implementing coordinated communication efforts.

13. INSTITUTIONALIZATION

For each of the pilot zones, a "lessons-learned" report will be developed for use as a guide in spreading the project to other sites and continuing the approach after the project has been completed. A socio-economic unit being developed within NCARTT as part of the HADP Project offers one location where behavioral, social marketing, and other analysis techniques can be maintained. Involvement of the University of Jordan offers a second way in which the specific methodologies can be institutionalized in Jordan. Specific media selection, design, and production techniques will be maintained by the agricultural information unit counterpart. Extension field approaches will be institutionalized by the extension counterpart based on lessons learned from the two pilot projects.

C. Pilot Project Sites

Because of the diverse types of farming, and the historical development of the agricultural research and extension system in Jordan, it has been decided to select one project pilot site in the Jordan Valley and a second site in the Highland region. This will permit the project to develop communication approaches tailored to the research, extension, and communication needs of each region, and will also enhance the possibilities for project institutionalization.

Specific sub-regions within the Jordan Valley and Highland regions have not yet been selected, pending final determination of the agricultural technologies to be implemented by the project. CTTA criteria for selection of pilot sites are presented below, followed by a discussion of how the decision was made to select two sites, and finally by a rationale for why the sites are appropriate.

1. CTTA Selection Criteria for Pilot Sites

The CTTA Project seeks pilot sites which are representative of the general pattern of agriculture in the country, and which offer sufficient variability in terms of farmer types, farm size and cropping patterns so that lessons can be learned which can be applied to other areas of the country. Specifically, desirable characteristics for a pilot site include:

- *Representative of widespread types of farming in Jordan, including cropping patterns, social and cultural characteristics of farmers, and soil and climatic conditions;
- *Accessible to both extension and to mass media delivery systems;
- *Access to a reasonable number of inputs, including credit, services, chemicals and fertilizers, seed, equipment, etc.
- *Access to markets for the agricultural technologies selected.

2. Analysis of How Pilot Sites Were Selected

In Jordan, there are substantial differences between farming conditions and farmers between the Jordan Valley and the Highland Region. Yet both regions are currently of great agricultural importance -- the Valley for its vegetable and fruit production for Jordan and for export, and the Highlands for cereal grain and olive production for the country. Because of these cropping differences, research and extension institutions in the country have developed to serve quite different farm needs and farm clientele.

Because it was perceived that both regions were vital to agricultural development in Jordan, and that both could be served by one project operating from the Baqa station where NCARTT is located, it was decided to select one pilot zone in each area. The idea of two pilot sites was developed after consultation with research and extension staff in both areas, and was presented in the preliminary design report.

3. Pilot Site Description

A. The Jordan Valley

The Jordan Valley, because of its involvement with the JVASP, has a higher degree of development of research recommendations, available extension infrastructure, and trained extension and research staff. Because of this greater degree of readiness, it was felt that this site should be selected for the first project

implementation. As similar technical recommendations and extension capabilities are developed, implementation would begin in the Highlands.

The Jordan Valley is served by 13 extension agents and the principal research station at Deir Alla. Each agent now has his own self-drive vehicle, a number of publications to deliver to farmers, and a VCR player in his office. In addition, the agents have been receiving weekly training in specific crop and pest problems, as well as extension techniques. The research capabilities of the Jordan Valley Deir Alla station have been greatly strengthened over the past five years by the JVASP Project, which updated and installed laboratory equipment for detection and treatment of plant viruses, soil chemistry, plant physiology and soil physics.

In addition, extension agents have worked through such semi-public organizations as the JVFA, and sometimes serve as secretaries to local JVFA councils.

The importance of the Jordan Valley region to Jordan's agriculture is demonstrated by the fact that the region produces an estimated 70 percent of the total agricultural production of the country.

As will be explained in the next section, a number of agricultural technologies which hold substantial promise for farmers in the Jordan Valley have been developed. The exact sub-region of the Valley selected for the project will depend on the technical recommendations to be delivered.

The Jordan Valley is well-served by Jordan public and private agricultural institutions, including the ACC, JCO, JVA, and JVFA as well as a number of processing and marketing units.

The national Jordan Radio and TV service provides regular agricultural broadcasts as well as the possibility of FM and television broadcasts tailored for the area. The area is also served by newspapers, and is only an hour's drive from Amman. Inputs and supplies are available privately and through JVFA.

B. The Highlands

The Highland area produces key cereal grains (wheat and barley) for the country, and also a large percentage of olive oil. Fruit tree production and vegetable production are also practiced both under dryland and irrigated conditions. Intensive field interviews are now being undertaken as part of the HADP project in a number of Highland zones to assess promising agricultural technologies and farmer constraints. As a result of this effort, plus other research information available through NCARTT and other sources, priority areas for research and extension activity will be identified. These will provide a base from which a specific Highland CTTA site can be selected for the second phase of the project.

Because the Highland area is often dryland farmed, there is an additional element of uncertainty and risk in farming which must be considered. In addition, substantial dry season off-farm employment occurs in this region. Farmers in the Highland area are served by research and extension staff located at agricultural directorates in each sub-region. There are also a number of research experiment stations.

The JCO, in cooperation with a German project, has begun to make available to farmers a number of improved seed varieties for wheat and barley, along with a package of equipment (tractor, sprayer, drill planter and combine) to increase production. Other private concerns are now providing similar equipment. Thus, through the public sector and private sector, improved inputs and equipment are becoming available which could serve as a project focus.

The area is well-served by radio and TV Jordan, and most regions are relatively easy to reach from NCARTT. A number of promising new agricultural technologies are described in the next section which could become project targets. The geographic zone selected within the Highlands should depend on the outcome of the current field investigation and other research input.

D. Technology Transfer Objectives

Promising agricultural technologies were investigated by plant specialist Dr. George Abawi in April, 1987, in cooperation with researchers at Deir Alla and NCARTT. His recommendations have been updated for this implementation plan. The examples are somewhat illustrative. Final selection should be based on further consultation with research staff.

1. The Jordan Valley

a. vegetable crops. Vegetable crops are receiving much greater attention now because of the tremendous increase in plastic greenhouses and drip irrigation systems in the Jordan Valley, plus a government policy of encouraging exports and import substitution (especially for potato, garlic, and onion). Although farmers have been quick to adopt new technologies and varieties, the constant influx of new crops along with the pests, soil problems, and other challenges they present, creates appropriate conditions for a communications project. Such a project could focus on new cultivars, fertilizer use, and proper selection and use of pesticides. The latter is considered a very serious problem at present by extension agents and management in the valley. For potato, a number of diseases have been identified and recommendations developed (for soft rot, black leg, etc.), and this crop continues to be in high demand for the Amman market.

b. citrus crops. Recent investigation at the Deir Alla

station has identified several micronutrient problems in citrus, especially a shortage of zinc. Although incidence of zinc deficiency is somewhat variable, it is widespread. Its conspicuous effects in terms of yellowing foliage are very noticeable to farmers, and foliar sprays offer a quick and easily observed remedy for the problem. The difficulty at present is a lack of zinc sulphate for use in the foliar spray. Should this become available, it would make an excellent communication topic. New tree fruits represent a second area of opportunity for a communications campaign.

2. The Highlands.

a. Cereal production is a national priority crop and covers more dunums of land than any other crop. Although improved varieties are available and recommendations for specific regions exist, fewer than a third of farmers are currently using such varieties. It has been estimated that adoption of a full range of practices such as improved seed, fertilizer, drill planting, herbicide use and combine harvesting could increase yields by 50 to 75 percent. However, many farmers do not have access to this full range of inputs, and rainfall, soil and other conditions greatly affect the appropriateness of some of the inputs. Efforts are being made to extend availability of seed and other inputs, and a flexible communication program emphasizing a range of micro-climatic conditions could be very effective.

b. Olive production has been an important part of Jordan's agriculture for some time, and continues to dominate permanent crops. MOA researchers estimate that pruning and grafting practices of farmers could be greatly improved. In addition, spraying for olive flies could result in significant production increases. A third area concerns finding more efficient methods for keeping weeds out of olive groves. Presently, up to five cultivations are necessary.

E. Summative Evaluation

A summative evaluation is planned under subcontract with ACT, Inc. The purpose of the evaluation is to gather accurate estimates of the accomplishments and impact of the CTTA project in both pilot zones. It will be integrated to the extent possible with the developmental investigation, pretesting and formative evaluation phases of the program, in order to reduce costs and maximize the information base on which the project builds. However, it will also use separate data collection to ensure that the final results are sufficiently rigorous and precise, and that results in Jordan can be compared with other CTTA projects worldwide.

To present a full picture of how well the program functions, the summative evaluation will investigate several different

categories of variables. It will examine the access that the target audience has to the communication channels utilized in the campaign; the actual exposure to the content and messages of the campaign; changes in levels of knowledge and attitudes about the target behaviors; changes in behavior related to the agricultural objectives; and changes in production and/or efficiency. Many related variables (such as input costs, market prices, weather, and characteristics of individual farmers and of the land) are also included in the summative evaluation structure.

Final decisions about the methods employed in the summative evaluation depend on the specific objectives selected after the developmental investigation and project design. However, it is anticipated that data will come from multiple sources, including surveys of farmers, interviews with agriculture sector professionals, direct observation and measurement of practices or effects of practices, and use of archival data from other agencies or projects.

The summative evaluation has several purposes:

- *to provide information about the overall magnitude of impact, and hence of the general cost-effectiveness of the activity in the pilot region;
- *to provide diagnostic information about the success of the various intermediate steps to allow identification of possible problems or areas where final outcomes can be increased by improving performance at intermediate points;
- *to provide a base for decision-making about the value and possible returns for expanding the effort within Jordan;
- *to integrate the findings from the Jordanian experience with related efforts in other countries under the worldwide CTTA program.

F. Diffusion Activities

The "lessons-learned" reports from each counterpart area for each pilot zone should provide a base of information useful to the project and to others in Jordan and other countries. In Jordan, seminars will be scheduled in both the pilot zones, NCARTT, and at other institutions such as the University of Jordan in order to report on the project. Reports to the CTTA project headquarters will be synthesized and combined with reports from other countries, and results will be presented at meetings, symposia and in printed form world-wide.

VI. Project Outputs

Project benefits to be realized by the CTTA pilot project activity in Jordan include the following:

1. Generation of knowledge about:

- *new or underutilized agricultural technologies which are appropriate for Jordanian farmers;
- *the role and effective use of communication to reinforce extension activities in transferring agricultural technologies;
- *the process of institutionalization of program assistance and other investments for agricultural technology development and transfer.

2. Developing a process and methods for:

- *integrating the capacities of several disciplines including agricultural extension, development communication, behavioral analysis, and social marketing for effective application in agricultural technology transfer;
- *integrating the project's communication methodology into Jordan's agrosupport system, including research, extension, information units, production input supply and agricultural marketing;
- *evaluating the process of applying the communication technology, especially in the area of formative evaluation, including message design and pretesting, message time sequencing, degree of repetition necessary, etc.;
- *evaluating the overall results of applying the communication technology.

3. Changes in farmer's practices, quality of communication and extension materials, and media skill development:

- *improvement in agricultural production performance in both the Jordan Valley and the Highlands through adoption of productivity-increasing inputs and practices by farmers and farm families;
- *tested materials and message delivery procedures adapted to Jordan's extension and media systems;
- *creation of extension and information units that are adequately equipped, staffed and trained to apply the project's communication methodology. This includes specific skills in media selection and sequencing, message design and pretesting, and extension delivery in concert

with a media campaign.

4. Networks and participation, including:

- *established linkages between project activities and national and international centers of agricultural research and extension;
- *infusion and diffusion of the project's communication methodology in the curricula of Jordanian agricultural research, extension, training and agricultural programs;
- *understanding of the methodology and impact of the pilot project among all donors and technical assistance agencies providing development support to Jordan.

5. Institutionalization and expansion, including:

- *in-service training and institutionalization of the project's communication methodology in the two selected pilot zones;
- *Development of the organizational ties necessary to extend the project's communication methodology to other agricultural regions of Jordan.

Extensive project documentation will be maintained.

VII. Project Inputs

Project inputs for the life of the project will include:

1. Technical Assistance

- a. One long term CTTA communications specialist for 15 person months with 3 additional person months to be available short term later in the project;
- b. Short term advisers (7 person months) in different disciplines to be determined based on project needs. Likely areas of need include: communication planning and strategy development, video and audio training, and print and other small media development. The principal purpose of short term advisers is to assist Jordanians in strategy planning and media production activities, and not to carry out such activities themselves.

2. Equipment and Operating Expenses

- a. One vehicle for the long term communication specialist;
- b. Limited communication-related equipment not to exceed \$5,000 over the life of the project;

- c. Limited operating expenses for special pilot project activities. This item, not to exceed \$5,000 per year, is designed to support new communication message construction or other innovative communication efforts to be tested in the pilot zones.

3. Summative Evaluation

As noted earlier, the summative evaluation is subcontracted to APT, Inc., and is conducted independently in cooperation with the project.

4. Support for Worldwide Diffusion Activities

Each CTTA project is supported for linking lessons learned to a worldwide information network.

5. Proportional contributions to the contractor's home office management and operational support

The CTTA project in each country supports central office costs associated with in-country project management and consultation. This permits the project to share fully in CTTA experience and expertise during the life of the project.

VIII. Reporting Requirements

Reporting requirements for the CTTA project in Jordan are as follows:

A. Implementation Plan and Letter of Understanding

This Length of Project implementation plan is being prepared for submission to USAID/Jordan and the Ministry of Agriculture for approval. This document will guide planning and decision making for the overall CTTA project in Jordan and specifically for activities in the Highlands and Jordan Valley pilot zones. The plan, which will be updated annually, includes: objectives, description of project outputs, inputs, methodology, reporting requirements, and a management plan (timeframe for key activities).

B. Integrated Action Plan

An integrated action plan will be prepared in collaboration with the Project Steering Committee within three months of the long term communication specialist's arrival in Jordan. The integrated action plan will emphasize the priorities for the full length of the project.

C. Interim and Final Reports

1. Monthly Reports

Monthly reports will be prepared and submitted to the Ministry of Agriculture, the director of NCARTT, USAID/Jordan, AED, and the AID/Washington Cognizant Technical Officer (CTO). The monthly report will summarize key activities, problems and proposed resolutions.

2. Semi-Annual Reports

Semi-annual reports will be prepared and submitted to the Ministry of Agriculture, the director of NCARTT, USAID/Jordan, AED, and AID/Washington. These include:

- a. Progress reports of activities undertaken during the reporting period and planned for the next period. These reports will include updates and recommended revisions in the Implementation Plan and Integrated Action Plan.
- b. A financial report, including accounting by line item of expenditures incurred during the reporting period and projected expenditures for the next period.

3. Trip Reports and Seminars

Trip reports for all international travel and for proceedings of seminars will be prepared and submitted to AED.

4. Summative Evaluation Reports

A minimum of two Summative Evaluation Reports will be submitted during the life of the project.

5. Final Report

A Final Report outlining all major activities undertaken during the life of the project, level of effort, and associated costs will be prepared at the conclusion of the project.

D. Informal Reporting

In addition to meeting the formal reporting requirements, frequent informal written and oral reports of progress and problems will be made to the Ministry of Agriculture, the director of NCARTT, and USAID/Jordan by the CTTA's long term communications specialist and other technical assistance specialists.

IX. Preliminary Implementation Schedule

The preliminary implementation schedule is designed to provide a sequencing framework around which individual project tasks can be planned and implemented. Because flexibility is absolutely essential in any communication project, dates and duration times of various project components are subject to change. Once the final technical recommendations are selected for each pilot zone, further revisions will be necessary to meet exact cropping schedules.

The schedule is presented in two forms. The first is a chronological listing of key events. The second is a graphic representation of the same events.

The schedule is designed for implementation of two pilot projects during the short two-year life span of the project. In order to achieve this, agricultural recommendations selected must to some extent fit the time schedule of the project, and planning, training, and other project activities must occur on time. In order to take advantage of the expertise still present in the JVASP Project in the Jordan Valley, a stepped-up schedule is proposed there with a focused message on a limited set of farmers. It is assumed for the time schedule design that foliar spraying of citrus with zinc phosphate will be the selected intervention in the Jordan Valley.

A more extensive investigation, strategy planning, and series of recommendations is proposed for the Highland pilot. This is because less ground work has been done there, and also because the microclimates, access to equipment and other factors necessitate careful segmentation of farmers there. For illustrative purposes, it is assumed that wheat and barley will be the target crops in the Highland zone.

A. Chronological Listing of Preliminary Implementation Activities

<u>Activity</u>	<u>Dates</u>
1. Preparation of Project Implementation Plan (IP) and Letter of Understanding (LU)	20 Aug-30 Aug 87
2. IP and LP approved	Sep. 87
3. Arrival of Long Term CTTA Communications Specialist (15 months)	Sep/Oct 87
3A. First CTTA Home Office Site Visit	Oct 87
4. Designation of Counterparts in both Extension and the Ag Information Unit by the Ministry of Agriculture	Oct 87
5. Establishment of project office and	Oct-Nov 87

preparation of integrated action plan

6. Investigation Step (field assessment of ag technologies, infrastructure, policies, farmers, rural families, and communication channels) for Jordan Valley Pilot Nov-Dec 87
7. Strategy Development (Media plan, message sequencing, for both extension and information unit) for Jordan Valley Pilot Dec 87-Jan 88
8. Investigation Step for Highland Pilot Dec 87-Feb 88
- 8A. Summative Evaluation -- both Highland and Jordan Valley -- initial data collection Jan 88
9. Field Testing Step -- Jordan Valley Pilot Jan-Feb 88
10. Training for production/dissemination/feedback--Jordan Valley Pilot Jan-Feb 88
11. Materials Production -- Jordan Valley pilot Feb-July 88
12. Training for production/dissemination/feedback -- Highland Pilot (designed to overlap to some extent with Jordan Valley training) Feb-June 88
13. Strategy Development -- Highland Pilot Mar-April 88
14. Communication Intervention -- Jordan Valley April-July 88
15. Formative Evaluation -- Jordan Valley April-July 88
16. Field Testing -- Highland Pilot April-June 88
17. Materials Production -- Highland Pilot June 88-June89
18. Data Assessment -- Jordan Valley Pilot (Also mid-course Data Collection for Summative Evaluation) Aug 88
19. Communication Intervention Begins -- Highland Pilot Aug 88-June 89
20. Formative Evaluation -- Highland Pilot Aug 88-June 89
- 20A. Program Review/adjustment -- both pilots and overall project Oct 88
- 20B. Completion of "Lessons Learned" for Jordan Valley Pilot Nov 88
21. Wheat Drill Planting time -- Highland Nov 88

22. Wheat Broadcast Planting time -- Highland Dec 88-Jan 89
23. Data Assessment -- Highland Pilot Jul 89
24. Final Summative Evaluation Data Collection Aug 89
25. Program Review and Adjustment Aug-Sept 89
26. Begin Transition to Secondary Sites
for communication activities Aug-Sept 89
27. Close out CTTA Project Field Office Sept 89
28. Prepare Final Project Report Sept 89
29. Final CTTA Home Office Site Visit Sept 89

Preliminary Calendar of Projected CTTA Pilot Communication
 Project Activities and Inputs Based on Illustrative Budget (2d
 Revision, 7/2/87) for Alternative II.

(4th quarter FY 87 to 1st Quarter FY 1990)

Activity/Input	FY87				FY88				FY89				
	AS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS	OND	JFM	AMJ	JAS
A. Activities													
1. Prepare Project Implementation plan and Letter of Understanding	X												
2. IP and LU approval	X												
3. Long Term CTTA Communications specialist arrives (15 months)	X												
4. First CTTA Central Office Visit	X												
5. MOA designates counterparts for both extension and information units	X												
6. Establish project office and prepare integrated action plan	XX												
7. Summative Evaluation													
a. initial data collection			X										
b. mid-course data collect.					X								
c. final data collection													X
8. Jordan Valley Pilot Activity													
a. Investigation		XX											
b. Strategy Development		X	X										
c. Field Testing			XX										
d. Training for production/ dissemination/feedback			XX										
e. Materials Production				XX	XXX	X							
f. Communication Intervention					XXX	X							
g. Formative Evaluation					XXX	X							
h. Data Assessment						X							
i. Lessons Learned Report							X						
9. Highland Pilot Activity													
a. Investigation		X	XX										
b. Strategy Development				X	X								
c. Training for production/ dissemination/feedback				XX	XXX								
d. Field Testing					XXX								
e. Materials Production					X	XXX	XXX	XXX	XXX	XXX	XXX	XXX	

f. Communication Intervention					XX	XXX	XXX	XXX		
g. Formative Evaluation					XX	XXX	XXX	XXX		
h. Wheat Drill Planting Date						X				
i. Wheat Broadcast Planting Date						X	X			
j. Data Assessment									X	
k. Lessons Learned Report										X
h. Program Review and Adjustment No. 1									X	
No. 2										XX
i. Begin Transition to Secondary Sites										XX
j. Close out CTTA Field Office										X
k. Prepare Final Project Report										X
l. Final CTTA Home Office Site Visit										X
II. Major Project Inputs										
a. Long term CTTA communications specialist (15 months)	X	XXX	XXX	XXX	XXX	XX				
Short Term Additional										XXX
b. Short term Development Investigation Specialist	XX									
c. Short term Media Specialist		XX								
d. Short term unspecified (2 months)										
e. Commodity Procurements										
1. vehicle		XXX								
2. office equipment	X	XXX								
3. communication equipment		XX	XX							
f. Summative Evaluation Specialist Visits			X		X					X
g. Home Office Management Visits	X									X

Appendix 1

Counterpart Responsibilities in Extension Division and Agricultural Information Unit

I. Extension Division

1. Work with NCARTT and Jordan Valley researchers and extension staff to develop technical recommendations and select an appropriate pilot site in each area. Technical recommendations should lend themselves to effective extension agent promotion and mass media coverage, and lead to substantial promise of short-term measureable behavioral change on the part of farmers.
2. Serve on the Project Steering Committee (comprised of the CTTA long-term communication specialist, the extension division counterpart, the agricultural information unit counterpart, a representative of Radio/TV Jordan, a representative of the technical recommendation area selected, and the director of each pilot zone when matters concerning his zone are concerned). The Project Steering Committee has the responsibility for overall development, testing, and sequencing of mass media and extension messages, and for decisions about audience segmentation.
3. Participate in initial field diagnosis of farmer information use, and time and process of decision making, contact with extension, etc.
4. Work to develop a feedback system from field agents in the pilot zone to project staff.
5. Work with the ag directorate in each pilot zone to develop a project work plan that systematically relates extension fieldwork activity to an overall media sequencing plan designed to maximize agent message impact on farmers.
6. Participate and assist in training extension staff in the pilot zones in methods maximizing contact and communication with farmers, including group meetings, field days, demonstrations, small media as a supplement to extension talks and field days, etc.
7. Work to develop a "lessons learned" report for extension on project activities which can be applied to secondary communication sites.

II. Agricultural Information Unit

1. Help work with research and extension units to develop mass media scripts/messages/visuals for radio/TV, posters, leaflets,

etc. which will supplement the personal efforts of extension staff in the pilot zones to communicate the selected technical recommendations to farmers.

2. Serve on the Project Steering Committee (see details on committee above).

3. Participate in field diagnosis of farmer information source use, time and process of decision making, segmentation of farmers for communication messages, etc.

4. Participate in training activities for information unit and other staff in video, radio, photography and print production methods.

5. Develop a media plan which indicates when each mass media message will be needed, when it would need to be prepared in order to be ready when needed, and the materials and time necessary to prepare it.

6. Participate and assist in carrying out formative field testing of each mass media message prototype.

7. Oversee actual production of mass media messages, including coordination activities necessary with independent media units such as Radio/TV Jordan.

8. Monitor media to assure that messages are used as scheduled.

9. Work to develop a "lessons learned" report for the information unit on project activities in both pilot zones which can be applied to efforts in secondary sites.

X. Approval of Implementation Plan

I hereby approve this Implementation Plan for the Communication for Technology Transfer (CTTA) Project in Jordan.

1. For the Ministry of Agriculture, Hashemite Kingdom of Jordan.

(signature)  _____

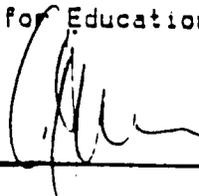
(title) Minister of Agriculture

2. For USAID/Jordan

(signature)  _____

(title) Director, USAID/Jordan

3. For the Academy for Educational Development (AED)

(signature)   _____

(title) CTT/ED CTTA Project Director