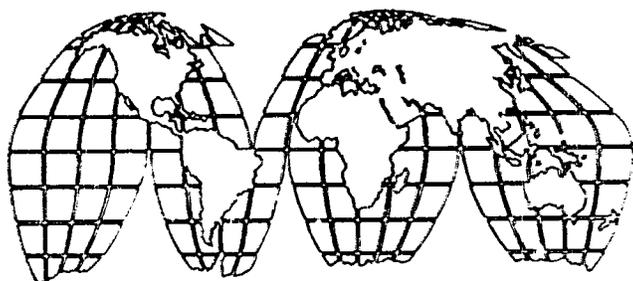


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Evaluation Synthesis Design:

*Innovative Approaches to Agricultural
Extension*

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EVALUATION SYNTHESIS DESIGN:
INNOVATIVE APPROACHES TO AGRICULTURAL EXTENSION

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PURPOSE

AID and its predecessor agencies have supported agricultural growth in developing countries for more than thirty years. AID's current Food and Agricultural Development Policy reaffirms the Agency's commitment to improving human and institutional capabilities for developing, adapting, and transferring improved technologies for agricultural production. The Agency's commitment is reflected in continuing high levels of investment in research and extension activities

AID's programmatic focus in agricultural research and extension has shifted over the years. During the 1950's and early 1960's, the emphasis was on transferring existing technology by improving host country extension systems. By the mid-1960's AID recognized that new technologies specifically adapted to the developing world were needed, and priorities shifted towards improving national, regional, and international research systems. By the late 1970's, the poor performance of "traditional" public extension systems became increasingly obvious, and by the 1980's AID began experimenting with a number of more innovative approaches to technology transfer.

Despite AID's relative deemphasis of extension during the 1970's, project designers realized that even effective technology would not disseminate automatically. Between 1974 and 1984 nearly \$300 million in AID funding was spent on extension only projects. Extension components in other agricultural development projects were much larger. One recent analysis, for example, estimated that extension activities accounted for nearly 1/3 of total agriculture project spending in the Latin America and the Caribbean.

Many of AID's recent extension activities have involved innovative technology transfer techniques aimed at avoiding the problems that have plagued traditional public extension bureaucracies. These techniques include the use of private firms and social marketing to disseminate new agricultural products, the use of mass media in public education, and the expansion of farming systems research to include more substantial on-farm testing and dissemination.

However, our knowledge of these activities remains fragmented and anecdotal. This review of "Innovative Approaches to Technology Transfer for Agricultural Production," will more clearly delineate the new technology transfer techniques being implemented by AID and other donors, will describe particular innovative projects in some detail, and will provide a preliminary assessment of the strengths, weaknesses, and applicability of alternatives. The study will be based upon analyses of existing project documents, interviews

with knowledgeable AID and other donor officials, reviews of agency and academic reports, and possible field visits to selected projects. The review will result in products and reports that will help AID managers more effectively implement the Administrators' recent guidance on agricultural extension.

THEORETICAL BACKGROUND

Farmers throughout the developing world must adopt improved agricultural technology if production is to increase and economic growth continue. Transferring improved technology depends not only the development of appropriate tools and techniques, but also on the communication of new opportunities to farmers, the training of farmers in new methods, the adaptation of these methods to the requirements of particular farming settings. Agricultural extension activities that facilitate this transfer process have been a major component in the agricultural development strategy of nearly every international donor.

Most donors have applied the bulk of their agricultural extension resources to improving public extension systems. In the 1950's and early 1960's, for example, AID promoted extension approaches for the developing world based on what was called the "Land Grant model." This approach emphasized the importance of agricultural universities in developing technology, providing a central repository of agricultural expertise, training the large number of field agents working directly with farmers, and coordinating and supporting the national extension bureaucracy. In practice, the approach was often modified to reflect particular host country experience with what might be called the British or French colonial extension models (see Atherton 1985). Both the British and French approaches centralized extension authority much more strongly in national agencies. In the British case this involved a highly bureaucratized structure that extended all the way to the field level and that included only limited involvement by farmers or researchers. The French approach, also highly centralized, emphasized broader goals with fieldworkers responsible for all rural and community development activities in particular locales.

Unfortunately, as Administrator McPherson recently noted, "the payoff to support for traditional public sector approaches to extension in LDC's generally has been disappointing." Many extension systems have become stultified bureaucracies. Extension agents often have very limited direct contact with farmers. Poorly trained extension agents, with little technical knowledge or practical experience, often simple mechanical parrot clearly inappropriate teachings. Sometimes extension agents serve as political tools, filling a wide range of tax collection, social service, or public welfare functions. Barriers to communication among extension agents, farmers and researchers are usually quite strong.

"Land grant" approaches have also proven less than satisfactory. Sometimes University based extension systems have become captives of inefficient national extension bureaucracies. More often, the Universities have simply ignored the practical realities of agriculture change. In the United States the Land Grant system developed through a long history of local farmer initiatives, private sector involvement, and university development. AID is now more realistically applying the lessons of this history, and the tools of modern education and communications, to the special circumstances of the developing world.

Innovative Extension Techniques:

One of this study's major goals is to more clearly delineate and more fully describe the innovative extension techniques currently being developed by AID and other donors. Our current categorization of these extension techniques remains therefore a preliminary listing that serves as the starting point for research. This preliminary categorization includes:

Private Sector Approaches.

Private firms have a natural interest in improving the efficiency and regularity of agricultural production and in expanding the the markets for agricultural inputs. In the United States private firms-- railroads, seed companies, equipment manufacturers, retail suppliers, and the like--have always been important disseminators of agricultural knowledge. While the private sector is sometimes poorly developed in contemporary LDC's (often because of inappropriate government policies) opportunities still exist for stimulating greater private sector involvement in extension. These opportunities include greater participation by private firms in satellite farms; greater involvement in producing and marketing new agricultural products, such as improved seed; greater involvement in public and farmer education; the use of small retail merchants to market agricultural inputs; and the development of cooperative public/private training programs for farmers and extension agents.

Modern Communications Approaches.

Extension is traditionally conceived as a face-to-face demonstration and exchange of information between extension agents and farmers, supplemented perhaps by written materials. However, modern mass communication and information processing tools are being increasingly applied and seem especially appropriate to extension in the developing world. Specific techniques include the use of radio, television, and print media to disseminate educational and informational messages and the use of computers by extension agents for better information access, customized farmer publications, and up-to-date crop, price and other information.

Social Marketing Approaches.

Social marketing, pioneered in the dissemination of family planning products, is also applicable to many farming technologies. Social marketing uses private sector marketing techniques (often implemented by private firms) to encourage the adoption of new products. The approach is particularly appropriate for disseminating tools and techniques which cannot be marketed profit (either because of the nature of the product or the target population) but for which the social benefits are high. Social marketing techniques might, for example, be used to disseminate new food cropping practices for which there was little commercial incentive.

Farming Systems Approaches.

Farming system approaches, developed over past decade, assess technological change within the context of the social, economic and agronomic complexities of actual farming practices. Farming systems research emphasizes the real constraints that farmers face and the need to test and adapt new technologies with practicing farmers. Many farming systems projects involve substantial direct extension activities or active collaboration with extension agents.

Improving Public Sector Extension.

AID has tried a variety of approaches to improving the effectiveness of public extension activities. These have included the development of special local or regional extension activities, the use of private voluntary organizations as extension agents, the use of farmer cooperatives as extension agents, the development of extension agent training programs, the development of farmer training programs, and the development of new institutional mechanisms for coordinating research and extension activities. The training and visit system, pioneered by the World Bank, is another important approach to improving the management of national extension bureaucracies by introducing more formal and rational management techniques to the entire extension process from the identification of appropriate technologies to the training of agents and the scheduling of farm visits.

Other Approaches.

The analysis of project documents, program reports, and academic papers should reveal other examples of new extension techniques or variants.

Analytical Framework:

The study will focus on particular agricultural extension methods or technology transfer techniques. These techniques may involve an entire project, a component of

a project, or simply one particular tool that a project employs. The study will also limit its focus to agricultural production technologies, as opposed, for example, to agricultural marketing or post-harvest processing.

However, to understand the potential and limitations of particular technology transfer techniques, we must assess their applicability in different social, political and agricultural settings. Scholars and practitioners have already identified a number of factors that influence the performance and success of extension activities. The range of factors to be considered includes:

The Appropriateness of the Technology Extended.

Most agricultural extension projects fail simply because they do not have appropriate technologies to extend. By appropriate technology, we mean new tools and techniques that increase the income and/or wellbeing of farmers under actual farming conditions. Farmers, even poor farmers in less developed countries, are reasonable decision-makers who will quickly adopt new technology if they are aware of it and convinced they will benefit from it. The appropriateness of new technology in any particular setting is affected by a number of context-specific variables including: a) national policies affecting crop prices, marketing opportunities, input costs, etc.; b) the existing farming system and potential conflicts in the allocation of land, labor, capital and other resources to new and old farming practices; c) the level of household production and the household's ability to absorb the risks of new practices; d) the nature of the farming infrastructure including opportunities for marketing and the timely availability of labor, water, fertilizers, and other necessary inputs; and e) the existing social and cultural system and its consistency with proposed changes.

The Type of Technology Being Extended.

Even if the technology is appropriate, different kinds of technology may still need to be extended different ways. Simple improvements in agricultural equipment, such as the introduction of a new hoe, might be effectively transferred through mass media education or marketing campaigns. Complex changes in agronomic practices, on the other hand, such as the introduction of a new system of intercropping, may require extensive demonstration and direct contacts between extension agents and farmers.

The Institutional Structure of Extension.

Extension responsibilities can be instituted in various ways in various organizations. Often, extension activities are organized in separate agencies along commodity lines. Sometimes extension responsibilities are combined in a single agency. Research, extension, and education activities can be integrated, separate, or variously coordinated. Responsibilities can be local, regional or national in scope. Extension responsibilities can be combined with non-agricultural activities or limited solely to agriculture. They can be instituted in private, public, or quasi-public agencies.

DATA COLLECTION AND ANALYSIS

The study will be carried out in three phases: Phase 1 will involve a series of case studies describing AID's experience with particular technology transfer techniques; Phase 2 will develop a synthesis analyzing the advantages and disadvantages of alternative extension approaches and the factors affecting project success; Phase 3 will conduct in-depth investigations, including limited fieldwork, of particular promising extension approaches. The primary units of analysis will be agricultural extension projects or extension components of larger agricultural development projects.

Data Sources:

Major data sources will include

- o The Development Information System (DIS) will be used to identify relevant projects and project components, to develop and test initial categorizations of extension techniques and to prepare brief project summaries.
- o Other automated databases, including project information systems maintained by the LAC ~~and~~ Africa Bureaus, the PBDS budget databases, and computerized agricultural bibliographies will be used to supplement and cross-check project information from the DIS, to analyze funding trends, to identify past syntheses and analyses, etc.
- o Project documents will provide the primary information for Phase 1 case studies and at least preliminary information on the factors affecting project success.
- o Technical reports from AID and other donors will provide additional summaries and analyses of past experience and the factors affecting extension success, and will be a major source for information on approaches pursued by other donors.
- o Participation in relevant conferences and workgroups, such as the Agency Working Group on Agricultural Technology Management, will provide up-to-date information on current project activities, trends, and scholarly analyses.
- o Interviews with knowledgeable AID staff and other experts will assist in identifying key issues and approaches, provide special insights not available in documentation, identify current trends and activities, and provide additional sources of documentary material. Selective interviews will also be conducted with other bilateral or multilateral donor agency staff to obtain information on their experience with extension techniques not emphasized by AID.

- o Field studies of selected AID projects, would include in-depth interviews with AID program and project officers, host country counterparts, AID contractors, and project beneficiaries, as well as direct observation of project activities and the analysis of documentary materials available only in the field.

Methodology:

The research will rely on a variety of case study and case survey methods to identify and refine agricultural extension categories, to describe project experience, and to analyze the factors affecting project success. Simple descriptive statistics will be calculated to describe the major characteristics of extension projects and techniques. If warranted, nonparametric measures of significance and association will be calculated to assess the major determinants of project success. More specifically:

Phase 1.

Based on project information from DIS, Bureau databases, and project documents, Phase 1 will: 1) identify all AID projects implemented during the past ten years that have a significant extension component; 2) refine the initial categorization of extension strategies based on information in project abstracts; 3) conduct a more detailed case survey including basic information on project characteristics and a summary description of extension activities for a sample of 50-100 projects representing the range of extension categories; 4) prepare detailed case studies for six to twelve projects representing more innovative extension approaches, using all available documentary data, supplemented by AID-W interviews to fill essential data gaps; 5) based on the case studies and case survey, refine the preliminary extension categories and summarize the strengths and weaknesses of the extension alternatives examined.

Phase 2.

Based on the results from Phase 1, interviews with S&T and regional bureau staff, interviews with relevant staff from other donors, and an assessment of the academic and agency literature, Phase 2 will develop an analytical synthesis of agricultural extension experience. This will include an overall assessment of the role of extension activities in technology transfer for agricultural production, an assessment of major issues, a summary of the the experience of AID and other donors, an appraisal of the factors affecting the success of particular extension approaches in particular development settings, and the identification of particular promising extension techniques.

Phase 3.

Phase 3 will conduct in-depth studies of the most promising extension techniques identified in Phase 2, including brief field studies of

representative projects. Specific information will be collected and analyzed on what works best in particular settings and what is involved in designing and implementing successful projects.

Schedule:

6/14/85 Conceptual Framework Completed

7/12/85 Initial Literature Review Completed

9/2/85 Phase 1 Data Collection and Analysis Completed

9/27/85 Phase 1 Report Completed

10/31/85 Phase 2 Interviews Completed

11/30/85 Phase 2 Report Completed

12/31/85 Phase 3 Fieldwork Begins

Work Plan:

- o The topic coordinator is Gerald M. Britan.
- o The research assistant conducting the Phase 1 case survey and case studies is Margie Ensign.
- o A DI contact/coordinator should be designated, preferable Dan Westrick, who prepared previous DI agricultural extension summaries.
- o No formal "Working Group" will be required. It is recommended that an informal working group be convened consisting of all topic coordinators focusing on agricultural issues (e.g. Joe Lieberman, Ray Solem, Gary Hansen, etc.)
- o A research assistant will be needed (\$5,000-\$10,000) during the Fall and Winter of 1985 to assist in Phase 2 analysis and Phase 3 planning.
- o If implemented, Phase 3 will involve in depth analyses of the most promising extension techniques. A team leader would be assigned for each technique investigated. Each in-depth analysis would involve brief (one week) field trips to 2-4 project sites by 1-2 person teams.

REPORTS AND PRODUCTS

The study will produce or provide the basis for a variety of reports and products, including:

- o Brief summaries describing the extension components of 50-100 AID projects.
- o More detailed (5-10 page) case studies of the extension components of 6-12 AID projects.
- o A 20-30 page paper identifying major extension approaches and summarizing AID's experience with them. (Phase 1 Report)
- o A 20-30 page paper analyzing major issues in agricultural extension, the experience of AID and other donors, the factors influencing project success, and identifying the most promising approaches for future investment. (Phase 2 Report)
- o Two to three 15-20 page reports assessing particular extension techniques and how effective projects using those techniques can be designed and implemented. (Phase 3 Reports)
- o A Project Managers Reference Guide for Agricultural Extension Projects, or specific Reference Guides for each major extension approach. (Possible follow-up)
- o Short articles on major findings for Frontlines or Horizons and for the CDIE abstract series. (Possible follow-up)
- o Journal articles or conference papers. (Possible follow-up)
- o An agricultural extension workshop or conference. (Possible follow-up)