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CTTA LINKAGES WITH NATIONAL AND INTERNATIONAL AGRICULTURAL RESEARCH

from the

Communications for Technology Transfer in Agriculture Project

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The Communications for Technology Transfer in Agriculture (CTTA) Project is a five-year research and development effort funded by the U.S. Agency for International Development and managed by the Academy for Educational Development. CTTA is designed to develop a methodology for applying mass media and social marketing to promote the adoption of agricultural technology to farmers in select countries.

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The need for the CTTA Project to establish and maintain linkages with national and international research systems, and the nature of the coordination and collaboration required has been established. CTTA Project objectives cannot be achieved if the communication interventions function in isolation from research. Research must not only provide the improved technologies to be included in the CTTA technology transfer objectives, but also must be involved at other critical stages.

National Research Institutions and Systems

National research systems are functioning in all countries identified to date for the CTTA primary and collaborating sites (Honduras, Peru, Swaziland, Malawi, and Ecuador), and it is assumed that similar systems will exist in the additional collaborating sites still to be determined. Although national research institutions vary in organization, magnitude, and quality of research output, the national research system in each country will be the primary direct source of technical content for CTTA communication interventions.

International Research Programs and Centers

The network of international agricultural research programs and centers is of direct relevance to the CTTA Project. Through this network, agricultural scientists in developing countries now have access to research findings and elite germplasm collections worldwide, and the opportunity to collaborate with outstanding scientists from the United States and international centers on research projects that would be impossible for them to undertake independently. Thus, the process of development and testing of new/improved agricultural technologies which comprise the technical content of communication interventions is both strengthened and accelerated. The international research centers also engage in significant training and diffusion activities. Therefore, coordination with and appropriate participation of the international centers in CTTA Project diffusion activities will be of mutual interest and benefit. The Project anticipated using one or more of the international agricultural research centers as the venue for international seminars organized by CTTA.

Relevant functions of the international agricultural research centers (IARCs) and the AID-supported Collaborative Research Support Programs (CRSPs) with respect to CTTA are highlighted below:

a. International Agricultural Research Centers (IARCs)

The IARCs are supported by The Consultative Group on International Research (CGIAR) to develop improved crop varieties and farming systems to increase food production in developing countries and to improve the lot of poor farmers. (The CGIAR is an informal association of governments, international and regional organizations, and private foundations.) More than 7,000 staff members, including some 600 senior scientists from more than 40 developed and developing countries, work at CGIAR-supported centers on crops, livestock, and farming systems that yield more than three-quarters of the developing world's total food supply.

Widely recognized for scientific excellence and seriousness of purpose, the IARCs attract talented, dedicated scientists from all over the world interested in finding practical solutions to the world's food problems. They cut across traditional academic lines to form multidisciplinary teams of diverse specialists for the improvement of major crops and farming systems, supported by research resources not available in most national programs. With worldwide germplasm collections and international networks for testing and adapting new materials, the IARCs can provide a rapid flow of technologies to national programs.

The international centers also serve as unique training institutions for strengthening the capacities of developing countries to carry out their own research and to collaborate with the centers in developing, testing, and adapting new technologies. In addition to the in-service training that is producing well-prepared, dedicated researchers and other specialists sorely needed in the developing countries, the IARCs also afford research opportunities to graduate students, postdoctoral fellows, and visiting scientists whose projects are relevant to the centers' primary mission.

The IARCs have, from their inception, depended on close formal and informal ties with networks of national programs--many of the professionals now staffing national programs in the developing countries are graduates of IARC training programs. A significant recent trend in IARC development has been the extension of activities from headquarter campuses to other developing countries. By 1980, almost 20 percent of the total senior staff were working directly with national and regional programs in more than 40 developing countries.

With increased concern for the resource-poor farmer has come the need for understanding the diverse traditional farming systems that have evolved to meet his circumstances. Increased farming systems research at the international centers has engendered sociological and economic studies to identify the motives for the farmer's behavior and the factors influencing his adoption of new methods, and to monitor the effects of new technologies.

Five of the CGIAR-supported international agricultural research centers have special roles and research responsibilities in countries selected to date for involvement in the CTTA Project.

- Centro Internacional de Agricultura Tropical (CIAT)

CIAT has as its mandated primary concern the general welfare of poor urban and rural food consumers in a vast and diverse region, the tropics of the Western Hemisphere. This fundamental concern is expressed in CIAT's efforts to increase production of the region's four principal food commodities--common beans, cassava, rice, and beef. In addition, CIAT collaborates significantly with CIMMYT on maize in the Andean region and on a seed unit in support of the center's commodity programs and production activities in the hemisphere.

The CIAT bean and rice programs are of particular relevance to the CTTA Project. The Danli region in Honduras is one of two major bean producing regions in that country, and is also the headquarters for the National Bean Improvement Program. From 300 bean varieties developed from crosses made at CIAT and introduced into Danli for testing recently, three have been selected for large-scale farmer trials in 1985. These varieties have good resistance to viral, bacterial, and fungal diseases and yield at least 50 percent more than the local Zamorano Red variety. The results of acceptability in farmer trials this year will determine which varieties are released. The released variety or varieties will constitute one of the new technologies to be included in the CTTA communication intervention in the Danli pilot region.

CIAT germplasm is also being used in the Sierra of Ecuador, and may culminate in one of the new technologies to be incorporated into the CTTA communication intervention in that country's pilot region.

The CIAT rice program has made major contributions to rice production in the Tarapoto region of Peru, including the development of an excellent paddy rice technology well adapted to the Tarapoto region, a potential CTTA collaborating pilot site.

- Centro Internacional de la Papa (CIP)

CIP is located strategically in Peru, the ancestral homeland of the white (Irish) potato, affording the center access to a great variety of natural potato genotypes, and to the environments in which the species arose and to which it is naturally adapted. Two of CIP's major aims are to improve the potato in its high-altitude temperate homeland in the Andes and to develop varieties for the lower tropical regions where it has great potential as a low-cost, nutritious food for many areas of the developing world. While continuing research related to these objectives and on techniques for faster, cheaper potato propagation by tuber seed, CIP is also giving increased attention to the use of botanical seed by farmers.

CIP research has extensive linkages with national agricultural research programs in Ecuador and Peru, two of the countries identified to date as CTTA Project collaborating sites. CIP-designed, but locally built, storage facilities are now being used in the Salcedo region of Ecuador to control sprouting of seed potatoes during storage, thus providing high quality seed for highland locations. New potato varieties developed through collaboration between CIP and the national research program have the potential for major yield increases in Ecuador. Both of these new technologies are appropriate for inclusion in the CTTA communication intervention, depending on the site selected as the Ecuador pilot region.

- Centro Internacional de Mejoramiento de Maiz y Trigo (CIMMYT)

Cereals make up more than half of the world's diet. The three crops on which CIMMYT works--maize, wheat, and barley--account for 60 percent of the global cereal harvest and are grown on more than half of the cultivated land in developing countries.

CIMMYT's parallel wheat and maize programs take several simultaneous approaches to the goal of increasing food production in developing countries. Genetic improvement of maize and wheat cultivars is fundamental. Along with the improved cultivars, CIMMYT develops research procedures to identify crop production constraints and to develop farmer recommendations to realize the yield potential of genetically improved plants under improved management. Improved farming methods are developed in close collaboration with developing country scientists and tested and adapted by national programs. Social scientists work closely with biological scientists to develop research procedures to identify social, cultural, and economic factors that condition farmers' acceptance of improved seeds and production practices.

CIMMYT maize germplasm is used extensively in many CTTA regions, but especially in the Danli region of Honduras. The national maize breeding program, headquartered at the Jutiapa research station in Danli, has used CIMMYT germplasm extensively in breeding and selection programs. The CIMMYT high lysine maize variety, NUTRIDA, is being re-selected for better husk quality at Jutiapa and will be available to farmers in two to three years. If released on schedule, this variety will be included as one of the new technologies in the CTTA communication intervention in the Danli pilot region.

CIMMYT has two scientists stationed in Ecuador with responsibility for wheat, barley, triticale, and maize improvement in the Andean region. From that program have come several improved barley, wheat, and triticale varieties for the Salcedo region.

- International Crops Research Institute for the Semi-arid Tropics (ICRISAT)

ICRISAT's purpose is to improve the quantity and reliability of food production in the semi-arid tropics by improving both the cultivated varieties of major food crops and the management of soils and water. The Institute's focus is on the conditions of the poor farmer with little land or other resources, who makes up most of the population and produces most of the food in the region. ICRISAT concentrates on five major rain-fed crops grown by resource-poor farmers: sorghum, pearl millet, chickpea, pigeonpea, and groundnut. It also maintains an economics program to investigate the social and economic factors that condition farmers' responses to improved technologies and to define their needs, and extensive programs of training, cooperative research, and international information-sharing.

ICRISAT sorghum and groundnut programs will be valuable research resources for CTTA collaborating sites in Africa. The Institute collaborates extensively with the Malawi national research program on groundnuts, a major commodity in that country. Several potential future CTTA collaborating sites in Africa use ICRISAT's expertise in sorghum research. Sudan, for example, has recently released the first sorghum hybrid developed by ICRISAT with INTSORMIL collaboration.

- International Institute of Tropical Agriculture (IITA)

In the CGIAR system, IITA has worldwide responsibility for the improvement of cowpea, yam, cocoyam, and sweet potato; and regional responsibility for cassava, rice, maize, soybean, lima bean, winged bean, and pigeonpea. Another major IITA program is devoted to improvement of traditional farming systems--the development of more productive and ecologically sound alternatives to traditional systems of bush fallow and shifting cultivation.

The specific relevance of IITA programs to the CTTA Project will depend on the additional collaborating sites which are selected.

b. Collaborative Research Support Programs (CRSPs)

A Collaborative Research Support Program (CRSP) is a joint AID/university effort, planned and managed with support by AID and the participating institutions. (The CRSPs are part of the Title XII program in AID.) Seven CRSPs are currently in operation, two of which (Sorghum/Millet and Bean/Cowpea) have special relevance to the CTTA Project.

All CRSPs have several U.S. participating institutions and overseas locations. They have a management entity to provide constant quality control, are multidisciplinary in their approach, and are joint ventures between AID, U.S. institutions, and their overseas host countries.

The purposes of the Sorghum/Millet CRSP (INTSORMIL) are: to increase sorghum/millet production and use; to improve research capabilities in developing countries through collaborative research between U.S. and developing country institutions; and to improve human nutrition through research and technology developments. Work on applied research problems is undertaken to relieve constraints to increased sorghum/millet production and use.

This program will provide a significant research resource to CTTA in Honduras, Peru, and (in the event that country should be selected as a collaborating site) Sudan.

The Bean/Cowpea CRSP is a program of coordinated projects in Africa and Latin America addressing hunger and malnutrition through research on the production and use of beans and cowpeas. It has a major program in Ecuador, a CTTA collaborating site, which focused first on farmer surveys to determine major constraints to bean production in that country. Agronomic research is now underway based on production constraints identified through those surveys. Salcedo, presently being considered as the CTTA pilot region in Ecuador, is not a bean producing area. If the pilot region finally selected should be in the Sierra where dry beans are grown, or in a coastal area in which lima beans or cowpeas are major crops, both the information gained from the farmer surveys and results emerging from research will be directly relevant to the CTTA Project.

Linkages and Coordination with Other Projects

The CTTA Project will be conducted so that there is extensive coordination with other projects, AID and non-AID supported, which are resources to the CTTA Project, as well as beneficiaries of its dissemination program. The Project recognizes the need for coordination with a number of specific projects such as:

- The Farming Systems Support Project (FSSP) operated under the University of Gainesville in Florida.

- "The Technology Development, Transfer and Feedback Systems in Agriculture: An Operational Systems Analysis," with the International Program for Agricultural Knowledge Systems (INTERPAKS) at the University of Illinois.

- The S&T/RD Small Farmer Market Access Project.
- S&T/ED projects applying methods of development communications and social marketing.

Such projects will be contracted early in the project so that meaningful coordination can be achieved.