

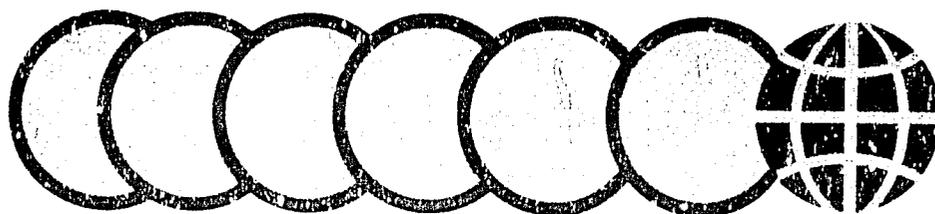
±(D)

PJ-ARY 382

ISBN 52521

The International Role of Extension:

Future Directions



Highlights and Recommendations

March 31 - April 2, 1985

Kellogg Center for Continuing Education
Michigan State University
East Lansing, Michigan

Editor: Dr. Mary Andrews, Program Leader
Cooperative Extension Service
Michigan State University

Design and Layout: Karen Purkhiser, Media Catalyst
Dept. of Agricultural and Extension Education
Michigan State University

Michigan State University
East Lansing, Michigan 48824

Additional copies of proceedings available from:

Cooperative Extension Service
Michigan State University
Rm. 48, Agriculture Hall
East Lansing, Michigan 48824

Conference Sponsors:

International Programs Office
Federal Extension Service, USDA

National Association of State Universities and Land Grant Colleges

Cooperative Extension Service
Michigan State University

Conference Planning Committee:

Co-Chair, Mary Andrews, Michigan State University

Co-Chair, Earl Teeter, ES-USDA

Advisor, Gordon Guyer, ECOP International Task Force

James Cowan, NASULGC

John Stovall, BIFAD

Jack Claar, University of Illinois

Lawrence Carter, Florida A & M University

Table of Contents

I. Background	1
II. Abstract of Ideas, Recommendations and Issues Raised During the Conference	4
III. Summaries of Key Note Addresses	10
IV. Summaries of Presentations on "A Technical Assistance Role"	15
V. Summaries of Presentations on "Mechanisms to Mobilize Domestic Education"	20
VI. Transcriptions from the Review Panel	25
 Appendix	
A. Summaries of Concurrent Sharing Sessions	38
B. Text of Keynote Addresses	49
C. Comments from Participants During Small Group Discussions	78
D. Conference Program	83
E. List of Participants	86

I. BACKGROUND

I. BACKGROUND

"U.S. Extension personnel have unique skills to contribute to international efforts. Presently this human resource is underdeveloped and underutilized. With increased pressures to narrow the gap between what is known and what is practiced in managing food production resources, the untapped potential of the U.S. Land Grant system must be mobilized. The momentum is starting . . . new models and initiatives are being developed. But a great deal more is needed!"

Quote from Conference Brochure

The National Conference titled "**The International Role of Extension: Future Directions**" was held from March 31 to April 2, 1985 at the Kellogg Center of Michigan State University's campus. It was designed to bring Extension administrators and International program personnel together to identify roles and establish commitment for increased involvement of the U.S. Extension system in international development efforts. Viewed as a direction-setting conference, it provided an opportunity to put action behind the ECOP generated statement of "The International Mission of the Cooperative Extension Service." Equal attention was devoted to Extension's international technical assistance role and its domestic education role. In fact, the two components were reviewed as having a great deal of overlap and interaction.

As the first such national meeting, the conference dealt with broad issues. Past international involvements were critiqued, current challenges identified and futuristic approaches and possibilities discussed. The objective of the conference, as formally stated in the program, was to **"energize" the Extension System** through:

- **dialogue** with key actors in the international community
- **development of networks** of contacts
- **sharing** of information on programs and approaches
- **critical analysis** of past, present and future involvements
- **recommendations** for future action.

Over 250 people formally registered for the conference, representing 39 states, USDA, USAID, the World Bank and a number of PVO's were represented at the conference. (a list of participants is included in the appendix.)

The two-day conference was organized around keynote addresses, panel presentations, and small-group discussions. Also available were eleven concurrent sharing sessions where resource persons explored specific issues and described current involvements of Extension in the international arena. Over 58 resource persons participated in the conference.

Comments and written reactions from participants were very positive. Based on questionnaires (N=42) completed at the end of the conference there was unanimous satisfaction with the relevance of the presentations, and 97% were satisfied with the breadth of content, the opportunities for involvement and the openness of the dialogue. When asked if the conference served as a catalyst in defining and analyzing an international role for Extension, 50% responded, "to a great extent" and 50%, "to some extent." A similar distribution was noted for the conference's impact on personal commitments toward supporting an international role for Extension. Many noted that they were strongly committed and supportive prior to the conference, but were pleased to have the opportunity to exchange views and gain new perspectives.

Although enthusiasm and optimism was widely evident at the conference, a strong undercurrent of realism was also present. Barriers and constraints to participation were openly discussed and consensus was apparent that new roles and involvements should be carefully orchestrated to positively effect both domestic and international constituencies. A focus on teamwork was emphasized within the land grant system, among donor organizations, with private voluntary groups and most importantly with indigous efforts. Many potential strengths of Extension staff and the Extension organization were articulated but couched in recognition of strongly felt needs for improved training, support, incentives and networking to efficiently develop and deploy these untapped resources.

The sponsors of the conference; the Federal Extension Service, the National Association of State Universities and Land Grant Colleges, and Michigan State University were acting in behalf of the International Task Force of ECOP (the Extension Committee on Policy.) It is within this group that leadership is being taken to mobilize the international interests of the Extension System. The recommendations contained in this document have been developed by the conference planning committee and supported by the International Task Force.

**II. ABSTRACT OF IDEAS, RECOMMENDATIONS AND ISSUES RAISED
DURING THE CONFERENCE**

II. ABSTRACT OF IDEAS, RECOMMENDATIONS AND ISSUES RAISED DURING THE CONFERENCE

Immediately following the conference, the various papers, transcripts and discussion session notes were organized, abstracted and analyzed for key issues or themes. As a result, the following presentation of concerns and recommendations have been developed by the planning committee and ECOP International task force. These suggestions form an agenda for both the organizational leadership within Extension and the donor community to reflect, appraise and hopefully improve conditions to foster greater involvement of US Extension staff in international and domestic education efforts. The talents and opportunities surrounding the involvement of these agents-of-change should be given priority attention!

Extension's Involvement in International Development

Challenges

1. Situations in developing countries vary so greatly that it is difficult to prescribe specific Extension roles and models.
 - o The effectiveness of organized Extension structures and delivery systems varies greatly.
 - o Differences in philosophies & approaches within & across agencies do not allow for unified objectives and goals.
 - o Limited cooperation often exists across agencies resulting in diversified and even competing programs.
 - o Coordination of Research and Extension activities is often poor.
 - o Lack of long-term project commitment results in short-term efforts that lack continuity.
 - o External factors and changing economic/political climates require a level of flexibility that is often unavailable on projects.

Recommendations

1. Support a variety of Extension involvements in development efforts and enhance efforts to facilitate teamwork across development activities, especially across research and extension functions.
 - o Deploy "teams", not individual experts to more holistically address integrated development issues.
 - o Work with a variety of agencies, PVO's, local organizations and the private sector, not just formal government Extension services.
 - o Capitalize on the unique strengths of U.S. Extension field staff to address multiple issues and mobilize local resources.
 - o Create multiple models--use a variety of Extension approaches.
 - o Allow flexibility in implementing projects:
 - Build a long enough time frame to be realistic.
 - Plan for disengagement by focusing on strengthening local capabilities.

2. Donor reluctance to involve Extension:
 - o Limited views of Extension's potential contribution.
 - o Lack of priority on development efforts focusing on Extension activities.
 - o Perception that the training and international experience of U.S. Extension staff is inadequate.
 - o Emphasis on "PhD" requirements
 - o Difficulty of matching Extension expertise with available jobs.

3. Development planners have limited knowledge of Extension functions and the interactive organizational constraints which influence technology transfer efforts.
 - o The appropriateness of given technologies varies for different target groups.
 - o Incentives and disincentives for change in the agriculture sector are not always known and considered in project plans.
 - o Multiple and incremental change is often needed to improve the agricultural sector.
 - o Lack of trained professionals and internal management problems reduce Extension effectiveness in many settings.

2. Strengthen organizational structures and networks to facilitate U.S. Extension involvement:
 - o Set realistic expectations for Extension systems. Build in management systems to learn from experience, monitor activities, and create efficiencies in deploying technical assistance teams.
 - o Strengthen the pool of Extension expertise through training, orientation, structured international experiences, and joint assignments with more experienced colleagues or teams.
 - o Recognize constraints to individual availability. Create career-long relationships with Extension staff to maximize long-term benefits to both state and international Extension systems.
 - o Develop a structure to identify and match expertise to projects.

3. Create a research base on Extension/technology transfer:
 - o Expand concept of technology transfer to involve processes and actors in the entire technology development and diffusion continuum.
 - o Inventory development efforts and models of Extension, identifying key factors affecting success or failure under a variety of environments.
 - o Incorporate a stronger evaluation component into ongoing projects.

Create a dialogue and ongoing communication across the variety of private and public agencies involved in international development to review Extension approaches and serve as a catalyst for strengthening Extension efforts.

- o The human dimension is equally or more important in the adoption process than the technologies themselves. Insufficient effort has been focused on understanding the impacts & evolution of proposed changes on people & institutions.

- o Involve a wider range of expertise (including Extension, WID, communications expertise) in the design and planning stages of projects as well as during implementation. Do not assume researchers can speak for Extension.
- o Explore new partnerships and formats for action including joint efforts with business, government, the media, private voluntary agencies and other groups.

4. Concern on the part of some Extension personnel that participation in international programs will:

- o Interfere with local programming.
- o Jeopardize opportunities for professional advancement.

4. Revise state Extension policies to create reinforcing structures and incentives for international participation:

- o Review Extension personnel policies to minimize personal and professional disruption due to international participation.
- o Better coordinate efforts to plan for continuity of ongoing programs.
- o Strengthen the commitment of the University and Extension system and local leaders to facilitate international programs.

Extension's Role in Improving US Citizen Understanding of International Development Issues

Challenges

1. Extension audiences are at various stages of awareness and readiness for programs about international issues.
 - o Self-interest strongly affects attitudes toward U.S. international involvement.
 - o Various and conflicting motives and interests for international awareness exist simultaneously.
 - o Apathy and even opposition to international involvement existed in the past and must be taken into consideration.

Recommendations

1. Design Extension programs that meet people where they are, while broadening perspectives of world issues and interdependencies.
 - o Be honest and speak to multiple perspectives.
 - o Integrate international issues with ongoing programming efforts/draw parallels to local situations.
 - o Address misperceptions and key concerns recognizing that complexities exist.

- o Parallels exist between international issues and public policy education--help people develop the skills to analyze and participate as informed world citizens.
- 2. Extension staff already have an overly full agenda and often lack confidence to deal with international issues.
- 2. Develop an institutional commitment that supports an international dimension in Extension.
 - o Incorporate an international component into all phases of Extension programs including staff development.
 - o Provide staff training, access to resource materials and coordination to create visibility and reinforcement for international programming.
 - o Capitalize on existing international linkages, exchanges, and support from other concerned organizations in communities.
 - Network with other groups.
 - Maximize educational value of exchanges & visits.
 - o Adjust personnel appraisal and evaluation systems to recognize international involvements.
- 3. Extension resources are particularly limited at this time making it difficult to expand core program responsibilities.
- 3. Devise means to secure funding to support an enlarged international dimension in Extension.
 - o Utilize the resources of the full University -- both faculty and students with international expertise, to support local efforts.
- 4. International exchanges and program activities may reinforce stereotypes and cultural ethnocentrism if not carefully managed.
- 4. Involve exchange participants in carefully planned orientation and debriefing sessions to stretch thinking and evaluate insights from multi-cultural perspectives.
 - o Mobilize past participants to "educate" others.
 - o Create opportunities for cross-cultural experiences within the state or county.

5. Perception that international topics and programs are separate or adjunct to the core Extension program..."they're someone else's responsibility."
5. Extension leadership must help staff articulate rationale for international programming consistent with missions, goals, and priorities.
 - o States must formulate their own plans to improve citizen understanding of how international events and forces affect daily lives.
 - o International concepts and issues cannot be separated out. World interdependencies exist in all areas of life. Help Extension professionals develop skills in recognizing and using these concepts in regular Extension programming.
 - o Citizen and leadership development programs offer unique opportunities to help U.S. citizens take more active roles in world affairs.

III. SUMMARIES OF KEYNOTE ADDRESSES

III. SUMMARIES OF KEYNOTE ADDRESSES

Opening Address: "Extension-Do We Really Have Anything Useful or New to Offer the Developing Countries?"

M. Peter McPherson, Administrator
Agency for International Development

Subtopics: AID strategies for Agricultural Development; Conditions restricting Extension success; Historic precedents in U.S.; the African experience; non-government extension system potentials; mass communications potentials.

Main Points: McPherson cited the disappointing progress made in the past with Extension projects that relied on host national government extension systems. Emphasizing Africa in particular, other conditions are necessary (such as roads and access to credit and inputs, etc.) before extension can be successful. Noting past experiences in the US, McPherson recognized the network of suppliers and informal information systems that complemented Research and Extension efforts.

Currently AID is focusing technology transfer priorities on working through the private sector and experimenting with mass communication methods that have been successful in national agriculture and health promotion campaigns. The high cost of maintaining current research and extension systems in developing countries is a challenge that AID is addressing by exploring alternative technology transfer methods.

International Technology Development and Transfer

E. T. York, Chair, Board for International
Food and Agriculture Development (BIFAD)

Subtopics: Negative Attitudes Towards Extension; Direct Transfer of Technology; Policy Constraints; Inadequate Infrastructure; Weaknesses in "Traditional" National Extension Systems; Effective Extension Programs; Technology Transfer Through the Private Sector; International Technology Development; A Non-Traditional Approach to Extension.

Main Points: Factors were cited as a partial explanation of why technology can not be transferred intact from one society to another. York notes that "No matter how much effective technology may be available or how good the Extension programs may be in disseminating this technology, little positive results may be obtained if the farmer does not have economic incentives to use the technology." (p5).

Factors were noted which often discourage producers from striving to obtain higher yields. Also mentioned were factors which commonly reduce the efficiency and effectiveness of Extension programs.

York suggests that rather than using these factors as a list for discouraging future international Extension efforts, they should be used as an agenda for developing a non-traditional Extension approach which would streamline agent responsibilities, strengthen Extension/research/farmer relationships, reduce the number of Extension employees while increasing the qualifications of Extension team members, and giving a greater program emphasis on Women in Development where appropriate.

"Extension is or should be concerned with much more than technology transfer" (Helping people organize and deal collectively with problems which limit the achievement of objectives). (p10).

Emerging Directions in International Research and Extension

J. K. McDermott, Farming Systems Support Project
University of Florida

Subtopics: Brief History of USAID Support of Research and Extension; AID/University Relationship; Role of the Extension Specialist; Emerging Directions

Main Points: The relationship between AID and the Land Grant universities was described as having been a somewhat turbulent symbiosis. McDermott suggests that "The direction which needs to emerge is for more collaboration between AID and the universities in programming and strategizing in human and resource development in general, and in technology innovation in particular." (p5). AID is presently giving systematic attention to ". . . understanding and managing the technology innovation process. AID now has two projects that aim to help the agency and its contractors understand and deal with technology innovation." (p4).

Regarding efforts in international Extension programming McDermott remarks that the lack of technical support for field staff and Extension specialists have been major obstacles to effective community education and development. The potential for Extension to influence community development will not be known until these factors are effectively incorporated into program design. (p4).

International Extension Programs for U.S. Citizens

G. Edward Schuh, Director of Agriculture
And Rural Development Department, World Bank

Subtopics: Ignorance of International issues; Description of International Economy; Content of Educational Programs for U.S. Citizens.

Main Points: There is a lack of recognition in many of our countries' economic policies and actions that economics have shifted from being a national issue to an international issue.

Schuh describes four major changes over the past 20 years which have affected international economics. "If Extension is to be relevant to the problems that members of our society face, it has to address our society in the dimension in which it actually exists." (p8). U.S. citizens, according to Schuh, need to know and understand:

- a. That we are a part of an international economy.
- b. The significance of inter-cultural and cross-cultural differences.
- c. How international institutions function and affect the lives of people around the world.
- d. The major forces driving the international economy and how they affect us.
- e. ". . . as much as possible about those parts of the world affecting their vital interests." . . . in order to play their role as private citizen and informed voter.

IV. SUMMARIES OF PRESENTATIONS ON
"A TECHNICAL ASSISTANCE ROLE"

IV. SUMMARIES OF PRESENTATIONS ON "A TECHNICAL ASSISTANCE ROLE"

On the Firing Line: Experiences With Extension Agriculture Development

Cal Martin, Assistant Director for
Research, African Bureau, USAID

Subtopics: The USAID Experience; Lessons Based on Experience; Experiences in Africa; What has Experience Taught?; Summary

Main Points: After a brief introduction of USAID history in international development it is concluded that ". . . the major problem throughout the 1950s and 1960s was the absence of relevant technology for transfer." (p2). By the late 1960s AID began to change emphasis from just technology transfer to technology development activities.

After several years of experience in cross-cultural work AID has concluded that for Extension to be successful, host and visitors must work toward an understanding of each other's cultures; limits within the host country must be considered when programs are designed and goals are set; and communications between farmer, extension, and research personnel must be good.

AID recommends that for Africa in general, "A sound institution is necessary to transfer technology . . . farmers need to observe and learn to use any technology under farming conditions similar to their own . . . (and) there is a need to reduce costs of Extension institutions through staff reductions." (p5-7).

Agent responsibilities in Africa need to be streamlined to avoid overloading agents with responsibilities outside of Extension goals, and subject matter specialists should be available to assist agents.

**The World Bank and Agricultural Extension:
The Training and Visit System in SubSaharan Africa**

Nigel Roberts, Eastern Africa Projects Department,
The World Bank

Subtopics: History of T&V; Definition of T&V; Case Study; T&V in SubSaharan Africa; Critique of T&V; Conclusion.

Main Points: World Bank considers SubSaharan Africa to be where the major challenges to Extension must be faced. T&V as a system is one option among many for structuring an Extension program.

Whereas T&V had very positive results in India because of a backlog of poorly disseminated research results, availability of inputs and credit, reasonably functioning markets, etc., in Africa T&V would be somewhat restricted as a system and therefore is only recommended in "higher potential areas in African Countries."

T&V aims at upgrading the technical content of field Extension activities while increasing agent efficiency and improving agent supervision. In order for T&V to work as a system, farmer field trials, regular visits, streamlining agent responsibilities, having access to relevant technology, and promise for economic incentives are all considered necessary. Communication has to be well maintained between farmers, Extension agents and research personnel.

T&V requires a 10 to 15 year commitment from "donor agencies," and World Bank recommends that local budgetary support be actively encouraged despite the difficulties of fund raising in a society where "subsistence agriculture" is the norm.

Extension Experiences in International Agricultural Development

Lowell H. Watts, Director Emeritus, Colorado State Extension Service and
Consultant, Heifer Project International

Subtopics: History of International Extension; Challenges for the 80s, PVO Experiences - Case Study; Challenges of Working in Africa.

Main Points: Watts provided a brief history of International Extension efforts was presented in the opening section. One of the lessons learned from past experiences is that "too much of our research and extension was irrelevant to or inappropriate for the small, limited income farmer."

In analyzing PVO experiences in Cameroon, Watts notes that program weaknesses included poorly managed research, limited material for clientele use, strained inter-organizational staff relations, and a need for upgrading the training of project personnel.

Watts also notes from personal experiences that there is a need to bridge misunderstandings caused by different cultural backgrounds in international programs. Specifically, North Americans must be oriented to understand the cost of risk for a subsistence farmer, and the fear that Third World people have of being too strongly influenced by U.S. policy and culture. . . . "Our ideas will remain and survive in direct proportion to the extent they are perceived to have been drawn from the indigenous leadership." . . . "Our job is not to Americanize the world, but to help its people feed themselves." (p11).

"Recent Initiatives: ES-USDA"

Earl Teeter, Program Leader, International Programs Office, ES-USDA

Subtopics: Networking, Communications, National Clearinghouse, Resource Bank.

Main Points The International Programs office within the Extension Service USDA is in the process of increasing its strength and activities. Earl Teeter provided an overview of some of the recent developments. For instance, a national network within the Extension system has been established. Contact persons have been identified by more than 40 states to link the states with the International Programs office at ES-USDA. This office serves a liaison role with other USDA international programs, USAID, FAO, and other international groups.

The office increasingly is becoming a clearinghouse of information about international programs, personnel needs, training opportunities, upcoming projects, opportunities for scientific and technical exchanges and technical assistance issues. An international job listings is currently available and kept updated weekly on the national electronic communications system, DIALCOM. Efforts are also under way to develop a human resource data base to assist in linking technical assistance requirements with expertise in the land grant system. The office is expanding formal USDA linkages with PVO's; the "Save the Children" memorandum of Agreement being a forerunner of such efforts.

This office was one of the key initiators of this conference.

V. SUMMARIES OF PRESENTATIONS ON
"MECHANISMS TO MOBILIZE DOMESTIC EDUCATION"

**V. SUMMARIES OF PRESENTATIONS ON
"MECHANISMS TO MOBILIZE DOMESTIC EDUCATION"**

"Title XII Experiences in Michigan"

Mary Andrews, Director International Extension Training Program,
Michigan State University

The Title XII Strengthening grant program was established to strengthen U.S. Universities' capacity to impact on efforts to alleviate world hunger. At MSU for the past five years a portion of the University's strengthening grant has been directed to support "The International Extension Training Program." Through this program, 40 current experienced Extension field agents in Michigan have received intensive campus and field training to prepare for international technical assistance roles. (another approximately 50 agents have participated in less intensive ways.) In addition to the basic training provided by international faculty from campus, the training program has funded one-month externships for 18 trainees. These externships provide hands-on experience in Extension systems in developing countries. The goal of the externship is to further develop one's Technical Assistance skills while testing one's capacity to adjust and contribute to programs in developing countries. In turn local agencies receive service and support.

An expectation of the training program is that agents will use their broader perspectives of international development realities to incorporate an international dimension in their local county programs. A great variety of efforts and commitments have thus been generated. A recent survey of non-participating staff documented the positive influence of these core agents in spreading receptivity to international issues and program participation throughout the system. Michigan has found however that domestic education will not spontaneously emerge without coordination, leadership, and continuous opportunities for staff to participate in international programs. Staff are hesitant to speak to international issues until they have developed their own expertise and have established credibility with their clientele through actual international experience.

"USAID Development Education Grants"

Beth Hogan, Project Director, Development Education Programs USAID &
James Harris, Coordinator of a CICHE-CES Project

Since 1981 AID has been funding project grants to private voluntary agencies to mobilize development education activities throughout the U.S. The Development Education Program is the mechanism used to further the objectives of the Biden-Pell Amendment to the U.S. Foreign Assistance Act which focuses on increased public discussion and awareness of the factors related to hunger and poverty. Annually proposals are received and reviewed by the Office of Private and Voluntary Cooperation of USAID. Beth Hogan from that office provided a detailed summary of how the grants are administered and highlighted examples of projects under way. A wide range of organizations, educational formats, and target audiences are involved.

James Harris from the University of Georgia reviewed the organization and objectives of one such development education project funded by AID. Georgia, Utah, Rhode Island, and Michigan are currently collaborating with the Consortium for International Cooperation in Higher Education, a non-profit educational unit within NASULGC, to implement a three-year curriculum development and program support effort within Extension. During year one a handbook is being developed of background material about world agriculture and development issues; four regional conferences for Extension administration and program leaders will be held, and individual efforts at public awareness within the four states will be supported. During year two and three a broader range of state Extension services will be involved to develop resource materials, train staff and coordinate development education programming within Extension. The World Agriculture theme was chosen to focus efforts on understanding the interactions between agricultural development, Land Grant contributions to development assistance and world hunger issues.

Extension-PVO Linkages Relative to The International Role of Extension

Earl D. Kellogg, University of Illinois

Kellogg reviewed early work began with PVOs and clientele groups when University of Illinois personnel affirmed the belief that ". . . the great Land Grant institution must address the important issues facing the world and inform and educate the public in some way." (pl) Through the years, Illinois has played a significant role in helping others understand international economics. In a strong agricultural state clientele need the support of extension and research in understanding the changes in international markets and forces.

The University of Illinois has consistently sought established groups such as PVOs to work with in educational outreach. The World Affairs Councils was noted as one type of PVO with which the University has cooperated in reaching significant leaders in communities. University of Illinois relationships with WACs were described, and advantages and disadvantages of joint activities were considered.

Kellogg noted that a number of issues of common interest to the public are appropriate for Extension to address. However, personnel who respond to these issues should be broadly familiar with the subjects, able to handle controversy, and facilitate rather than dominate clientele and PVOs exploration of interests. Increased joint efforts with PVOs were encouraged considering the broad overlap of PVO and Extension objectives.

"An Inventory of Action - AUSUDIAP"

Lawrence Apple, Director for International Programs,
North Carolina State University

Increasingly the leadership within University International Programs have been concerned about the need to develop public support for university programs in the international arena. Especially critical is the need to diffuse potential negative reaction to university research and institution building programs that support the development of the agricultural potential of developing countries that are viewed as competitive with U.S. interests. Broad-based public relations and educational efforts are needed to involve agricultural leaders in dialogue about international issues and to create a more informed public.

In 1984 the Public Affairs Committee of AUSUDIAP initiated a survey of member institutions to document the intensity of public awareness/education efforts. Lawrence Apple, Chair of that committee presented highlights from that survey. Based on responses from 78 units, it was evident that a number of institutions have initiated public relations efforts such as brochures, reports, speeches, and presentations; but few have a coordinated outreach plan or any consistent strategy to improve public understanding. A great deal of interest was evident to strengthen these public relations efforts.

"Roles of Foundations"

Norman Brown, Program Director, W.K. Kellogg Foundation

A number of foundations have had active interest in international programs and strengthening U.S. citizen appreciation of global issues. Norm Brown spoke to the need to involve foundations in Extension efforts to educate U.S. citizens about interdependencies. Foundations can be a audience for our messages, a source of support and also a partner in identifying and designing efforts. The Kellogg Foundation has been very active in the past few decades in supporting leadership development efforts--among young farmers, land grant administrators, citizen boards, and young professionals from both the U.S. and Latin America. A major new international leadership development/networking effort is being initiated by the foundation. A core component of such leadership development programs is to develop broader perspectives among participants; helping people relate to the complexities of the world and to appreciate the interdependences that exist across peoples, economics and political systems. Norm referred to the youth exchanges, so well orchestrated within 4-H, as key opportunities to enhance global understanding through people to people involvement.

VI. TRANSCRIPTIONS FROM THE REVIEW PANEL:

REPORTS FROM SMALL GROUPS

AND

PARTICIPANT OBSERVERS

SUMMARY COMMENTS
from
"Extension's Role in Technical Assistance"
Discussion

Dick Rankin, ES-USDA Spokesperson:

"Thank you Gordon. From what I could tell, the discussion groups were pretty active groups. The one that I was involved in had quite a few of the Extension field staff from Michigan. Gordon, I appreciate very much having those staff in the group. They added a lot to this meeting and I think Michigan State should be complemented on what you are doing in involving county extension staff in international programs.

As for the discussion groups, the question was, "Is there a role for Extension"? Well, all of the groups, of course, indicated "Yes." Quite a few comments were made about the need for better planning of projects to involve Extension for more assurance of success. That idea came across quite frequently in the comments. One report noted "Emphasis needs to be made on PEOPLE." Academic theoreticians talk about "models" and "technology transfer," whereas Extension is a problem-solving organization. Especially in the field where the rubber meets the road. If the project is properly designed and the right people are hired and supported with flexibility built in, the project is more apt to be successful.

Ok, now some of the barriers--one barrier mentioned was the lack of good support systems in the LDC's, both for local professionals and U.S. professionals. Some of our Extension people feel that an overseas assignment can damage their career. This is particularly true of field staff. Language is, of course, a barrier that we need to address. One of the other comments was that many of the programs and projects do not seem to have clear goals and objectives. People are not sure what it is they are really trying to accomplish. Again, the fact that projects lack Extension input in program design came forward in all of the reports.

Some of the strengths of field staff involvements and conditions under which their participation might work are projects which require interaction the the farmer and the farm family. Relating to problems of clientele: knowledge of issues from a client point of view can be a very critical strength for field staff contributions. A potential problem, however, is locating and hiring people within the system to go overseas. Field staff generally do not fit the job descriptions and are not a part of the network of contacts about potential position. In some cases, it is harder for county staff to leave and come back to the county. Some state policies force them to be relocated elsewhere.

Some changes that are needed are: (1) find ways to use younger staff, as interns or co-workers. There is too much of a tendency to hire senior people near the end of their careers, (2) the involvement of Extension people is hampered because AID evaluation teams put too much emphasis on people with Ph.D's. We need more emphasis on relevant experience regardless of degree. There were other comments, but those are the major ones.

SUMMARY COMMENTS
from
"Extension's Role in Domestic Education"
Discussions

Harold McNeill, Director of Extension, University of Maine:

"Thank you, I've attempted to glean from the various committee reports those things that seem to cut across most of them, although a few ideas did not. So let me see if I can interpret this the best I can.

As far as Extension's domestic role in international education, it was accepted that this is a vital role for Extension due to its responsibility to the public for educational pursuits. Extension has a system of staff with University backup that can help energize this role.

International issues should be integrated with ongoing programs rather than treated as a separate effort. In this way international efforts would not be tagged on or added or subtracted at will from the rest of the program. There needs to be sufficient information or a data base, which does not now exist, to adequately support a strong international program. Therefore, a recommendation to Experiment Station Directors would be to give more attention to issues such as international marketing factors, that are necessary to develop educational programs on policy, etc.

There is also a need to generate positive attitudes among youth, families and individuals regarding the importance of international programs for the community and for the world, as it benefits each of us. A need exists to strengthen the international youth exchange programs through provision of involvement in more substantive experiences such as credit, cooperatives, trade, agriculture technology and family planning.

We need to give consideration to the interest created in the current dollar exchange rate and other financial problems to help educate clientele about international relationships. Information is needed on what the economy's going to do in the future as a basis for decision-making!!! . . . helping people look into the future! The suggestion was made that economic experts should train our Extension specialists and counsel staff on issues of trade and the conditions that determine market conditions. This approach would include Home Economics, and 4-H. Every specialist then should be able to and indeed interpret the economic conditions and trends in their perspective subject areas.

Extension should consider linking up with PVOs and other groups that could help interpret international issues to the public. Reference material needs to be made available to the States. Now, background material does not exist or is inadequate.

University administrators need to be convinced of the value of international education and be urged to give their support. Universities may not always have the faculty with the capability or knowledge to handle a comprehensive international education program. Some suggested ways to correct this might be to tap existing research faculty, to hire some new career people who already understand international programs, and to make better use of the information that is now available to us.

These were general thoughts that we deciphered from the reports of the small groups. Thank you.

INSIGHTS ON EXTENSION'S INTERNATIONAL ROLE

Dr. James Anderson, Vice Provost and Dean, College of Agriculture and Natural Resources, Michigan State University:

"Thank you very much, Gordon. I have particularly enjoyed the opportunity to participate in the conference during the past day and a half. The conference discussions have not only clarified the role of Extension in the international arena but also have addressed some of the challenges. The participants have pointed out future directions, challenges, opportunities and problems associated with taking up that mandate and fulfilling the role. I would like to comment on a few ideas that I haven't heard discussed during the conference which I feel are going to impact on Extension's ability to fulfill that role.

First, you are going to be able to fulfill that role with the mentality that thinks only in terms of Extension. There must be a partnership between Extension, research and teaching so that the total resources of the university can be utilized in carrying out the Extension role. The partnership is well established in our domestic programs, consequently there should not be any difficulty in extending that partnership to the international arena.

Second, Extension will be constantly faced with budgetary short-falls in the closing decades of this century. We are in a period of budget restraint, whether it be at the State or Federal level or in our interactions with various foundations. As Extension develops a strategy and becomes more involved in the international arena, great care must be taken not to over-extend the resource base available. Extension, like research and teaching, must develop ways to reach closure on projects and to redirect money and activities. Further, a special effort must be made to maintain flexibility because problems and challenges change with time.

Third, the domestic agenda for both teaching, research and Extension is constantly changing. Let me elaborate for a moment. There will be great changes in both the research and Extension agendas as we look to the next ten years. The technology that we have today simply will not be sufficient to sustain agriculture at the turn of the century. We must develop a new generation of technology that is less resource-consuming, more nearly scale neutral and one that will not adversely impact the environment. Biotechnology will form the basis for the next generation of agricultural research and we must sustain an effort over time in research if we are to transfer this technology to the production, processing and distribution system. Furthermore, the clientele that Extension serves will continually change both at the domestic and international level. Further, the methods used in the distribution of that technology will greatly change also.

Fourth, the interface between research and Extension is constantly changing. Much of the applied and developmental research now conducted by the research community will most likely be done as a part of an Extension effort in the future. The interface between research and Extension will become very diffuse and it will be difficult to tell where Extension ends and research begins. Therefore, the research and Extension programs, whether domestic or international, cannot be planned independently but must be planned from a partnership perspective. Computer driven information transfer systems will permit Extension to deliver information a great deal more effectively. Extension will be able to tap vast resources of information and deliver information in a timely manner in both domestic and international programs. The increasing educational level of Extension clientele will also make it possible for Extension to do less information transfer on a "one on one" basis. Obviously, will will not be doing business as usual.

Fifth, we must be increasingly concerned about the international dimension in our educational programs. Further, foreign languages will become increasingly important whether one is in Extension or research.

Sixth, the last challenge that I will mention here facing Extension as it examines its role in international activities relates to people. We are approaching a period in time when many of the faculty who have made institutions great internationally will be retiring. In the next ten years we have many departments that will lose thirty percent to fifty percent of their senior faculty. This provides an opportunity to redirect effort but it also necessitates that we take long-range steps to plan so that these programs will not lose their momentum. Colleges of agriculture must aggressively develop strategic plans that will look at staffing needs over a period of ten years. The international dimension should be considered for both research and Extension as faculty are replaced when they retire. Furthermore, it will be absolutely necessary that we get a commitment to international activities from the young people that we employ. We must use a great deal of salesmanship here and let the young person know that we can provide an opportunity for them to contribute in the international arena. We have taken specific steps at Michigan State University to address this problem by designating ten tenure track positions for the international role. People employed in these positions have joint appointments between teaching, research and Extension.

In conclusion, let me challenge each of you to continue to develop the strategy for the future role of Extension in international activities. I am sure this report will be published, but that will not be sufficient to get the job done. I urge you to make specific plans to put into practice some of the great ideas and suggestions that were shared at this meeting. Be deliberate in your efforts to weave the international component into the Extension programs. You certainly have an important responsibility in follow-up efforts to develop a strategy which will bring to reality some of the things you have discussed at this conference.

Let me express my appreciation to each of the program participants for the contributions they made during this conference. We appreciate your efforts and feel that this has been a very worthwhile activity.

Dr. Paul Larsen, Director of Extension, Utah State University

This conference has generated some superb discussion and a great many topics have been covered by distinguished people. It's been hard to absorb it all. Certainly the foundation for ideas of what might come in the future has been expressed. I do not intend to recite things that I have only heard here, rather the charge was to get some impression of what some Extension Directors believe concerning "what comes next" in international activities for Extension.

Some of my colleagues and I believe that if Extension is to have a substantial involvement in international activities, we in Extension must develop ourselves as lead horses in the team. We need to be pulling together and to be assisting in the development of action programs and action activities. The Extension mandate for international involvement was made clear about a year ago when the Federal Extension Service issued policy statement that Extension should be involved in international programs and that our involvement is really a program leadership role. In a sense it is the same program role we have in youth, agriculture, home economics and community development.

I would suggest there are three points of emphasis in order to fulfill this mandate as well as some of the expectations already expressed in this conference.

First on the domestic side, we have to develop at the state level, logical, pragmatic programs that convince the citizens of our various states, including farmers, consumers, and the state-type politicians (if I may use that term) that international involvement is not only in our best interest, but also in the best interest of the individual states. As an example, as Bob Crom indicated to me, the farmers in Iowa really ought to know the international situation in the production, marketing, utilization, etc., of such things as soybeans, beef, corn and pork. This commodity or program mix might vary from one state to another, but it is in our fundamental best interest for citizens to know about international issues to be better able to manage their own activities. As stated by Ed Schuh yesterday, the various policy issues that confront us as a nation, are vitally important to all of us in the various states.

The second point is that international involvement is important because of several humanitarian aspects. In a sense, we ought to be involved because we ought to be involved. No more needs to be said about that.

The third point of emphasis and one that could be the real salvation of our involvement is youth activities. Some of you may not have read or may not be aware of the substantial international activities of our 4-H programs. Norm Brown, who you heard yesterday, now Program Leader at the Kellogg Foundation, was the 4-H Leader in Michigan when he said the following. "International is not a foreign aid program, but it is really a program for the growth and development of citizens of each state." The U.S. currently has about 100,000 4-H youth involved in international activities, including youth exchanges and other activities. This is a vital international component! It's the state-wide programs that will have the greatest contribution and a great pay-off in the international arena.

In terms of foreign involvement, there are two major aspects that I would touch on briefly. First, our Extension personnel can contribute very substantially to knowledge, training and technology transfer in developing countries. There is no question about that. The question is how Extension personnel can be best utilized in developing countries with all of the constraints involved. Secondly, the other side of the coin is that the insights and experiences from those foreign involvements can strengthen and add to our in-state programs. It is this element that we often do not take advantage of after a person comes back. We put them back in their "peg" where they are not utilized as they could be.

These two types of involvement, in-state and international, are really dependent on two basic assumptions or requirements, if Extension is to be successfully involved in the future in international education.

One, Extension must be accepted as a full partner in the international arena by whatever organizations we deal with; whether it's the research administrators of AID, or the host country leaders, or perhaps even the "class status" of Extension at the university. There is often a problem of pecking order, or status, in university administration that is not always favorable to Extension. We cannot be used unless we are a full partner.

Second, I think we as Extension administrators must accept the idea or philosophy that international involvement is a major program element of Extension. For example, we ought to recognize that talent and inclinations for foreign service might be one of the criteria that is equally important to some other elements in hiring new people, including language training and all the rest. As a matter of fact, we have made the decision in our state that we are going to have language as one of the elements on the position descriptions. We also must be willing to have a rotational system, whereby we recognize that you are going to have people going out and have people coming back. The reward system and all that goes with it has got to be there for international services, just as it is for domestic services.

William T. Mashler, Former Assistant Administrator, United Nations Development Program

It's a novel experience for me to speak as a former civil servant. I wish Ed Schuh, an old friend, was here. He joined these ranks just as I was leaving them. I would like him to hear some of the things I have to say in response to his speech.

Number one is that, I've never been exposed to such a large number of members of the land grant universities. This is my first exposure to such a large group, discussing this problem; and that in itself is an important experience and one that I will treasure. Being here has been most instructive and a lesson to a recent "graduate" of this school.

I would like to reflect on the last day and a half, starting with the two keynote addresses. The first by E. T. York was a very fine tour de force, putting into perspective the national as well as the international aspects of Extension in agriculture development. Then Ed Schuh presented an excellent expose' on the dangers in the present day economy and, particularly, in the financial world. I must say that I do not entirely share Ed Schuh's pessimism. In fact, having been here and having seen, particularly in the group sessions, how you work, it has given me a great deal of faith in America. You are an important reflection of the country from ocean to ocean, from north to south. You represent a great number of different interests; regional, national, and state interests, but you are all totally committed to agriculture. Ed suggested that we are looking at life more and more in terms of how we can profit. I did not leave with this impression from this gathering in the last day and a half. Here, the message that I got was that people participating in this enterprise were trying to find ways of how they could "give" rather than how they could "profit". And, how they could improve life both here in America as well as abroad. That, to me, is a powerful message of hope. I still say there is a lot that America has to give and is prepared to give without necessarily receiving anything in return. That is the message of the last day and a half.

Turning to Extension in agriculture and developing countries, this is one with which we have been concerned for as long as international economic and social programs have been in existence. It goes back to the Point Four program in the late forties. Yesterday, I said that much of what did not happen in Point Four was a large part due to the then still existing colonial system which did not make it possible for the Point Four program to function as it was intended. The blame for this rests in large measure in those remaining years in the colonial system which were a lost opportunity for bringing about change. Under the colonial system much that happened in agriculture was concentrated on plantation agriculture and not on the improvement of subsistence agriculture as it should have been. In the last twenty five years we have been trying to make up for these omissions of the past. They were not the errors of the American Extension and land grant college systems. The land grant concept was conceivable of adaptation.

In some places the land grant system did take hold, like in India. Perhaps not in the same form and shape as it did here. Just recently in a visit to Harriana Agricultural University, I did see an example of the transfer of technology and methodology from one university to another. In this case it was the University of Illinois which helped Harriana Agricultural University to adapt the methods of the land grant system. Today it is a fine example of what can be done if you want to do something. And that is replicated in other places in India. Whether we can do this elsewhere depends on the creation of proper responses to the demands of the local situation.

I would say that in Africa, for the time being, much will be needed to improve agriculture. The World Bank, The United Nations, UNDP and other agencies are all searching for ways to do something. Those who could potentially provide investment funding cannot do so because a great deal of infrastructure yet needs to be created to make agriculture work. It isn't as simple as some

think. Therefore, my suggestion would be that we should not look at agriculture globally and try to get prescription packages for everyone. Rather we have to look very specifically at different regions and sub-regions and different cultural settings that pose different demands. This requires that we listen to the people we serve to understand their needs before we can act. This will take a great deal of patience. It will take a great deal of time before we can assist the people who look for help in alleviating their poverty and misery.

But also what is needed is better leadership. And this is where we come back to the American setting, both in the land grant college system as well as in the rest of the American University system. The political process and our youth will face serious challenges. Leadership from the academic community is needed but frankly, has been slipping.

I remember that when I went to school, I knew the name of most university presidents of the leading universities. They spoke out on issues and problems. Since then, the university system has drastically expanded and the demands upon it have become enormous. But the intellectual leadership is not as visible as it might be. I think that the students of the 1980's will require more than technical and specialized training which many are seeking in light of the opportunities they seek. But opportunities are not the only criteria in education. What seems to be in need of improvement is a greater stress on liberal arts, on the cultural life which provide the values within which our society must function. And while I find that there is a re-awakening of interest and awareness in this important area, much more is required.

John R. Ericksson, Deputy Assistant Administrator for Research Bureau for Science & Technology, Agency for International Development

Thank you Gordon. It has indeed been a pleasure to have shared the last day and a half with you. I came to this conference with the question: "What should the role of AID and other donors be in supporting public sector extension efforts in developing countries?" I believe this question is particularly relevant to the most critical problem and challenge we face in the developing world today, that of subSaharan Africa.

We in AID view the widespread adoption of improved technology as a major means by which the goal of sustained growth of agricultural productivity and incomes is reached in most countries. The question then becomes: "What are the major constraints to the widespread adoption of improved agricultural technology, and what role does extension play?" The ECOP policy statement and the conference were quite clear in saying that there are several basic constraints, including: (1) lack of improved technology available and suited to local conditions; (2) distorted economic policies that dampen farmer incentive to adopt improved technology; (3) lack of complementary inputs, such as fertilizer, and (4) inadequate basic infrastructure, especially roads and irrigation, where that is feasible. It is now well-recognized that unless these basic constraints are addressed, extension efforts cannot be expected to accomplish much.

Suppose, however, that these factors are in place, or are on their way to being put into place. To what extent does public sector extension or an intensified form of it, such as the "Training and Visit" approach, become essential for technology transfer? Given the severe limits on trained human and financial resources in subSaharan Africa, this conference has concluded that a range of approaches need to be explored, including the private sector and mass communications, as well as, more efficient public sector extension.

A first issue that arises is: How far, and under what conditions, can private enterprise be relied upon or encouraged to transfer improved technology, especially to small, low-resource farmers, and especially those engaged in domestic food production? One answer suggested by Mr. McPherson is, that if a market is there, even a domestic urban market, quite a bit can be expected. This is a question that requires additional analysis and empirical research, including case studies.

A second issue is: Can communications approaches, including mass media, extend improved technology to small, low-resource farmers? Experience in Central America and elsewhere has shown that mass communications cannot completely replace person-to-person contact, but rather should be viewed as a complementary extension of personal contact. A third issue relates to the purposes of person-to-person public sector extension. One purpose mentioned at the conference is feedback to researchers. Another is the sending of messages to policy makers about farmer views of relative prices, markets, transportation, etc. A related function is helping farmer organizations achieve production-related objectives. Cooperatives, for example, can provide inputs, serve as lobbying groups for better policies, more relevant research, needed infrastructure, etc.

Can African countries afford extension services? If public sector extension is to be both effective and affordable, the size of services, as Dr. York noted, will probably have to be scaled back in a number of countries at the same time that steps are taken to upgrade qualifications, strengthen linkages to research, make greater efforts to reach women farmers, etc. Even then, it will be difficult for the poorer African countries to pay for extension. Innovative approaches to financing public extension services must be developed.

In closing, I would like to mention two other useful dimensions of this conference. First is the role of the Cooperative Extension Service (CES) professional in A.I.D. or other donor-supported projects dealing with technology development and transfer. CES staff have important and relevant attributes; name, dedication, a problem-solving approach, a client orientation, a tradition of drawing on the local community, including private enterprise, and a history of strong research, extension and university linkages. CES professionals who become involved in international work must be knowledgeable of, and sensitive to the circumstances and constraints faced by the host country. They must seek creative approaches, such as integration with farming systems research, exploring mass communications approaches and pursuing an expanded role for the private sector.

Second, I have been impressed by the conference discussions of the role U.S. extension agents can play in the "development education" of the American public. To help them play that role, several things are required, including: (1) targeted research, such as that being done at the University of Illinois on the causes and sources of U.S. agricultural exports and imports; and (2) examples of the qualitative benefits to U.S. farmers of international agricultural development programs, for example, international wheat research identifying pest problems that impact upon agriculture in both the U.S. and developing countries.

Thank you again. It has been a great pleasure to participate in this conference.

CLOSING COMMENTS

Dr. Gordon Guyer, Director Emeritus, Michigan Cooperative Extension Service:

We appreciate that, and I'd be remiss in closing if I didn't indicate why it really happened. Allow me to reminisce a bit. In the twelve years that I have been actively involved in Extension, I can remember Lowell Watts, who never lost sight, and was probably the only director along with Jack Claar, who consistently reminded us that there was something important in the international arena for Extension to be doing. Something for all programming areas that Extension has really not taken a hold of like we should. They didn't have much support, but they encouraged other key directors to become involved. I wouldn't have suspected that twelve years later out of this would come two-thirds of our states being represented along with private citizens, volunteer organizations and the real key people who make the decisions in Washington. I guess I would give complete credit and tribute to both of you. I often wonder how you stuck with it under such adverse conditions.

I also propose that we have only scratched the surface at this conference. There is sufficient evidence to indicate that this development education approach will place us in a more positive relationship relevant to clientele understanding and the encouragement of Extension's involvement as a part of the Land Grant Universities activities and international programming. I can speak for one state where there hasn't been a single incidence when our Extension professionals have been involved that they haven't been first better professionals, but more importantly, better communicators relevant to world issues. Every person in their communities whose lives are touched by Extension's programming are now more supportive of international involvement. I believe that the Extension Service will be richer, the professionals be of higher quality, and we will have broken a barrier that has generally existed relevant to active involvement of Extension professionals in the international arena.

One other aspect that is exciting about the potential for Extension international involvement is the fact that we are able to get together key people from such a diverse group of representative agencies. We have the opportunity to bring into active involvement thousands of Extension professionals in agriculture, public policy, natural resources and the broadest aspects of family and young people. I propose that there are other unique Extension resources such as the nutrition professionals who come out of disadvantaged families of our large cities, the thousands of 4-H volunteers who are already serving people. We must find ways to increase the partnership and interaction with professionals from AID, the PVO's and so forth. It is exciting what we might get done.

To Jack, Lowell and those who have maintained an interest in expanding the Extension horizons, I thank you for having the intestinal fortitude to stick with your convictions.

APPENDIX

A. Summaries of Concurrent Sharing Sessions

SUMMARIES OF CONCURRENT SHARING SESSIONS

The Cooperative Extension Service in Supporting Third World Extension Efforts

J. B. Claar, Director INTERPAKS, Univ. of Illinois,
And Lowell Watts, Director Emeritus, Colorado State Univ.

Subtopics: Brief History of CES and Smith-Lever Act; Questions About CES International Responsibilities; Extension in the Third World; Potential Roles for CES.

Main Points: An explanation was given as to how the original Extension mission has expanded and thus creates potential for CES involvement in international activities. Presently CES is evaluating ongoing international development activities to determine potential roles for CES and the cost in dollars and other resources for Extension involvement.

The Extension situation in the Third World was discussed in such a way as to suggest that existing systems have several areas which could be improved upon. Both the T&V system and Farming Systems approaches were critiqued.

Specific suggestions for Extension involvement were highlighted, including facilitation of communication among international development workers, providing for improved technical assistance, and encouraging research of Extension models and methods for Third World settings. The question was raised, "Should Extension serve a leadership role in international development or merely assist in carrying out courses of action charted by others?"

Involvement at a highly organized institutional level was thought to be undesirable. Instead more informal or moderate steps toward involvement were recommended.

Strategic Planning for Cooperative Extension Involvement in International Programs

Lawrence Carter, Administrator of Extension, Florida A & M Univ. and
Marvin Beatty, Extension Associate Director for Programs, Univ. of Wisconsin

Subtopics: Why U.S. Should be Concerned About International Economics; The Role of CES in International Development; Integrating Domestic and Foreign CES/Research Programs--a Case Study.

Main Points: In providing an overview the presenters established why the U.S. should be concerned about international affairs and why CES should be one channel through which we become involved. Potential roles discussed were involvement in activities which aid small scale agriculture producers, which improve the knowledge systems of the leadership of LDCs, and those which study and aid existing infrastructures in host countries.

A major component of the discussion was how to integrate international issues and program involvement with ongoing domestic programs. The two should be complimentary, however, the planning and administration of programs usually involves different offices and people within the University. Coordination across units and offices is a difficult challenge. Building lines of communication and involving personnel in both international and domestic efforts are key strategies.

An example or case study was used to show how a USAID funded program to improve efficiency of goat production in Haiti provided valuable information for use in a domestic Extension program in Florida focusing on goat production in lower-income farm communities. In this case both programs were designed and managed by CES.

Extension Women and Families in Development

Nancy B. Leidenfrost, Program Leader Home Economics and
Human Nutrition, ES-USDA and
Nancy Granovsky, Assoc. Director Home Economics Ext., Texas A&M

Subtopics: Role of Women in International Development; Legislation; Extension Methods in Womens' Programming; Development of Human Resources; International Understanding and Cross-Cultural Perspectives; Qualifications of Home Economists for International Work; Challenges to North American Universities in International Programming.

Main Points: After reviewing the importance of women in the world economy, significant legislation which has opened the door to international Extension programming was reviewed including Title XII, Title XIV, and the 1973 Percy Amendment.

Recent resistance in North America to "women only" programming was discussed from a cross-cultural perspective. Many Third World countries do not accept integrated programming. Integrated program is cited as a long-range goal.

Basic education of children and higher training for adults were described as fundamentals in development efforts. Education of women is considered essential if Extension programs in agriculture, health and nutrition, and family planning are to be successful.

Extension Home Economist's qualifications for involvement in international Extension work were discussed. The need was identified for further cultural training opportunities for Home Economists and American citizens in general. Adjustments in University tenure systems will have to be made if newer faculty members are to feel encouraged to serve in overseas assignments. Suggestions were given for Home Economics Extension programs at the county level.

U.S.-European Cooperation in Rural Development: Research and Extension Implications

Robert Lovan, Program Coordinator Community Decision-Making Structures
ES and ERS-USDA; and Normal Reid, Head State & Local Government Section
ERS-USDA

Subtopics: Historic Relationships, Similarity of European and Extension & Research; Agendas; Ongoing interactions.

Main Points: Immediately after World War II, the Marshall Plan and a variety of U.S. assistance efforts helped European countries to recover from the war and to develop their economic base for an improved standard of living. Today an expanded number of countries participate in joint efforts to maintain economic growth, assist less developed countries, promote world trade expansion and further understanding of rural issues and policy alternatives. During this presentation a range of issues and forces affecting rural communities in Europe and the U.S. were highlighted and the similarity of research and Extension agendas compared. The Organization for Economic Cooperation and Development (OECD) is a forum to promote high-level government analysis and cooperation on policy issues, research needs and development strategies. The efforts of this organization was used as an example of how much we can learn from other countries through "inter"-change.

A 4-H Role in International Development

Ray Crabbs, Vice President National 4-H Council
& Joel Soobitsky, National 4-H Program Leader ES-USDA

Subtopics: Historic Review of 4-H International Involvements, Goals, and Objectives, and Current Challenges.

Main Points: "4-H International programs contribute to understanding among people of the world through assistance, education, exchange, and training programs." (Handout, Brief Historic Review). Since 1948 when the first official exchange program was created, the International Farm Youth Exchange Program (IFYE), over 31,000 individuals have participated; living and working with host families and promoting cross-cultural understanding. Today 4-H type programs exist in some 85 countries, many having benefited from contact, training, and exchanges with U.S. 4-H youth, volunteers, and staff. International programs today provide specialized training, direct technical assistance to development projects, organizational assistance in operating youth programs, and a variety of exchange opportunities. 4-H has been active in collaborating with other agencies such as the Peace Corps, Heifer Project International, Partners, IICA, etc. in efforts to expand youth development programs in developing countries. On the domestic side over 4.5 million members are involved in some aspect of international study. Increasing U.S. citizen understanding of world development, interdependencies, and peace is a continuing objective of 4-H programs. Some challenges that were noted are to increase the educational value and the sharing of exchange experiences; integrating 4-H international activities with other development efforts; and to capitalize on the cross-cultural educational opportunities available within the U.S.

Potential for CES-PVO Partnerships:

The CES-SAVE Experience

Larry Stebbins, Co. Extension Director, Michigan and
Agricultural Coordinator, Save the Children

Subtopics: Description of CES/Save the Children Work Agreement; Description of Save the Children; Case Study of CES/SAVE Joint Program.

Main Points: Larry Stebbins a County Director and Agricultural Agent in Michigan has been assigned to work with SAVE for one year to strengthen agricultural programming in the organization. This pilot project is the first joint international program effort between Michigan CES and a PVO. The agreement to cooperate orchestrated by USDA was made with both short- and long-term objectives.

Stebbins recounted details of his experiences in Gambia, Burkina Faso, Cameroon, Samolia, and Dominican Republic during his one-year term of appointment, listing specific accomplishments.

During discussion Stebbins affirmed the philosophy at SAVE in their requirement of participation by host country representatives in the planning and implementation of community development activities. SAVE has projects in over 40 countries and among Indian and poverty level rural communities in the U.S.

Partner's Experiences

Frank Madaski and Norm Brown, Michigan Partners

Subtopics: CES opportunities for involvement, overview of Partners of the Americas.

Main Topics: Major discussion centered around the opportunities for Extension staff involvement in PVO's. Extension workers tend to be concerned about people, and thus are good resources in mobilizing local communities and groups to address change. They are skilled in working with advisory groups and tend to have an ability to organize people and resources. Many countries need the skills of people such that CES has. Extension has the potential for serving an important role internationally.

Third World Church Leaders Advice to Missionaries From First World Countries

Michael Score, Returned Agriculture Worker
Zaire, Mennonite Central Committee

Subtopics: Eight points from a literature review; Working with people rather than for them; Learning from past experiences.

Main Points: Five of the eight suggestions from a broad selection of Third World Church leaders emphasize the need for humility and mutual respect in First/Third World relationships. The goal of First World personnel should focus on the improvement of life for Third World people according to Third World goals, cultural and economic limits. The limits of Western technology must be acknowledged, and the replacement of First World personnel by Third World people should be planned into the program.

Development is a multi-faceted or wholistic process (spiritual, social and physical!). Because expatriates have been overly aggressive and critical in relating with people from Third World countries, care will have to be taken to encourage full participation by Third World partners in program planning.

Suggestions were given on how to work with people rather than for them. For example, nationals should be involved in the planning process and long periods of time are usually needed to establish cross-cultural relationships.

Experiences in Working With African Women Through a PVO

Mary Score, Returned Agricultural Worker,
Zaire, Mennonite Central Committee

Subtopics: Work division between genders in Africa; Effects of development programs on women.

Main Topics: By citing statistics from Murdock (1967) it was emphasized that for a long period of time women in the world have been responsible for a majority of agriculture production. Examples from Ghana were referred to in order to illustrate how introduction of new technologies and cultivars can increase women's work load and reduce production of traditional crops, if research is inadequate or poorly integrated with local conditions before a change is encouraged.

Three suggestions were made to avoid negative impacts on women from development activities: a.) know as much about the culture as possible, involve more women in planning; b.) keep in mind women's workload and time constraints; c.) investigate the possibility of training women Extension agents.

Degree Work in International Extension

Bill Farnsworth, Utah State University and
John Gross, University of Missouri

Subtopics: Information on M.S. Programs in International Extension From U. of Missouri and Utah State; Insights for Supporting International Students.

Main Points: Concern has been raised that U.S. models and research don't relate to other cultures. However often international students who receive specialized higher degrees in the U.S. get promoted outside their area of expertise to administrative responsibilities. They may be trained in research, not administration! In response, for example Missouri and Utah have developed a core curriculum designed to provide administrative training.

It is important for agents to know how to teach by the demonstration method and to be able to set up and manage research or educational programs. Both Missouri and Utah try to get students out in the field to observe how technology transfer occurs in multiple ways. Many international students study at a Land Grant University but leave never understanding what Land Grant means! If international students are apt to become administrators, it is critical to teach them to interact with others effectively. International students need to be able to apply management principles in Research and Extension administration to their own countries.

Small Farm Programs - International Implications

T. T. Williams, Director
Human Resources Center, Tuskegee Institute

Subtopics: Future direction of Extension in the international arena; Agents' role in working with farmers in developing countries, Training US agents for overseas work; Closing remarks.

Main Points: For U.S. participation in Extension programming in LDC's, "Placing high priority on food production must be reflected in (host) country's national policy"...and host countries should improve in managing human and natural resources.

U.S. agents "must recognize that information transfer is the primary responsibility of Extension personnel..." and that this is best done through indigenous leaders who can serve as model farmers. Agents can keep model farmers updated through seminars, short courses, workshops, and one-on-one counseling.

U.S. agents must understand local conditions and resources available to farmers, working toward maximum utilization of local resources. Community leaders involved in farming should be cited in order to encourage farmers regarding the importance of their role. Regarding women in agriculture it is suggested that they be integrated into traditional Extension programs rather than being treated as separate units.

Situations in the U.S. which are similar to Third World situations should be used as training centers for agents before they go overseas. These same settings can be used to help foreign students understand how small farmers in the U.S. overcome challenges they face.

Information Systems for International Development

Mason Miller, Director of Information, Winrock International;
 Hal Taylor, Communications Consultant;
 Ovid Bay, Director of Information ES-USDA; and
 Don Esslinger, Information Specialist, Univ. of Missouri

Subtopics: Observations From Previous Experiences; Rapid Technological Change; Predictions and Needs of the Future; Descriptions of Communications in Some Third World Countries; Qualifications for International Communicators; Role of Communications in International Programs.

Main Points: Government policies in Third World countries can inhibit the result of Extension programs by limiting budgets below needs and by requiring that Extension communications must support political decisions . . . "Hence, government policies relating to compulsory plantings and deliveries to the government of certain basic commodities at fixed prices significantly below world market prices is a serious constraint . . . " (p1). Considering the rapid expanse of western technology throughout the world, it is predicted that "Audio teleconferences via satellite will be used soon with developing countries . . . " (p2). Printed materials and video discs were also mentioned to strengthen the idea that there will be a revolution in international communications between First and Third World countries.

The point was made that ". . . reasons that information does not get disseminated as effectively as we expect in Third World countries is that responsibility, authority and budgeting follow different lines." (p1). It was noted, however, that a solution to poor communications is not merely to transplant the North American system. International communicators must be prepared to work on tasks requiring broad experience and individualize recommendations for each setting.

Communicators could be called upon to address how information will be handled. Project papers and proposals should deal with how information will be diffused. Information systems of foreign countries need to be described and utilized in Extension programs. Communications should be a key item in the budgets of international development projects.

By utilizing communicators in planning, training, and Extension phases of programs, people on campus, North American citizens, and citizens of host countries will benefit more fully from work being done.

Supporting Extension in the Caribbean

Ray Woodis, Communication Specialist,
Caribbean Agricultural Extension Project, MUCIA

Subtopics: MUCIA Caribbean Project Report, Extension Systems, Regional Planning.

Main Points: MUCIA has been implementing a major Extension Improvement Project in the Eastern Caribbean for five years now. Woodis just returned to the University of Illinois after serving as an Educational Communications Specialist with the project in Trinidad. Briefly some of the accomplishments of the project were designing job descriptions and work plans for all Extension personnel, creating a planning structure and identifying concrete goals for Extension to work toward, developing innovative evaluation techniques and realistic criteria to judge progress, supplementing current activities with training and the development of educational resources. A slide tape presentation produced by locally trained communications expertise was used to provide a project overview. Some of the issues raised were:

- a. Extension personnel need formal training (with some sort of certificate) in order to be recognized by the ministry (civil service). Thus access to University programs is critical.
- b. The need for equipment, salary, and training improvements is noted. In-service training programs which are relatively short (two weeks) and which have relevant information to present are appreciated.
- c. Coordination across units within the Ministries and across Ministries in cooperating countries has been a major focus. This has led to better planning and a break down of rivalries.
- d. Each country has unique administrative/political issues to face thus even with similar agricultural problems, each country must have an individualized program agenda. Yet the regional coordination provided by the project has been used to help analyze potential strategies and build supportive networks.

County Level Strategies: Communicating with Home Folk

Michigan Cooperative Extension Staff:

Andrea Ay (4-H), Richard Breyer (CED), Margaret Bucklin (EHE),
Charles Gibson (Specialist), Duane Girbach (CED), Elaine Glasser (EHE),
Pat Livingston (4-H), Gerri Peebles (EHE), Nancy Radtke (IETP)

Subtopics: Developing County Support for International Programs; Identifying Key International Themes; Strategies for Reaching County Audiences; Impact of International Experiences on Staff Skills and Programming.

Main Points: Michigan Extension staff who have been involved in technical assistance and domestic education programs as part of the International Extension Training Program described their international experiences and discussed their impact on county programming. Some of the questions and concerns raised during the session were (1) How can we justify investing staff time in working with Extension systems in other countries when we have so many problems in our own counties and we may be helping potential competitors? (2) How can we develop county support for staff involvement in international programs and county interest in learning more about international issues? (3) What are key themes in international programming and what topics are of most interest to county audiences? (4) What are some strategies for reaching county audiences? (5) What effect has involvement in international programs had on CES staff?

In response to the above questions, participants noted the need to emphasize international interdependence and the long-term benefits of international programs for people in both the United States and other countries. Exhibits, slide presentations, and international exchanges as well as "laying the groundwork" with county commissioners have helped staff to develop support for their involvement in technical assistance programs and to develop local interest in international issues. Clientele are most interested in programs that directly link international and local concerns by, for example, showing Michigan's trade relationships with other countries or how international agricultural research efforts have benefited Michigan farmers.

Among the programming strategies adopted by the agents were: (1) Forming countywide international councils and/or working with other international groups (e.g., returned Peace Corps volunteers, United Nations Association, local ethnic groups). One county council plans a yearly folk festival and a full calendar of activities for international exchange students and U.S. teens. (2) Incorporating international themes into regularly scheduled Extension events. For example, sessions on international trade can be included as part of an annual CES-Farm Bureau Interchange. (3) Organizing special international events such as Extension Homemaker College Days or Ethnic Festivals. (4) Arranging for international visitors to meet with clientele and participate in Extension events. (5) Involving volunteers in developing resource materials on international issues; i.e., volunteer homemakers work with staff to develop an international study packet for use by study clubs throughout the state. (6) Including short references to international examples as part of regular presentations, news articles, and TV and radio interviews. Adequate training in international issues and resource materials that are appropriate for county audiences were seen as essential to developing effective programs.

Staff noted that their international experiences have helped them to (1) Be better prepared to work with clientele from different cultural backgrounds as in training Indochinese nutrition aides to work with refugee families. (2) Feel more confident about organizing international programs in their counties; and (3) Gain a broader perspective of Extension's role internationally and at home.

APPENDIX

B. Text of Keynote Addresses

**OPENING ADDRESS AT CONFERENCE ON "THE INTERNATIONAL
ROLE OF EXTENSION: FUTURE DIRECTIONS"**

Michigan State University
March 31, 1985

**EXTENSION:
DO WE REALLY HAVE ANYTHING USEFUL OR NEW
TO OFFER THE DEVELOPING COUNTRIES?**

M. Peter McPherson, Administrator
Agency for International Development

It is particularly fitting for this evening to be dedicated to John Hannah.

Dr. Hannah can be proud of his enormous contribution to Michigan State University, to the country, and to the world.

I thank you for the opportunity to launch this important conference. Dr. Guyer and others at M.S.U. are to be congratulated for their efforts.

My speech will focus on extension and the role that education plays in that process. This conference is about teaching farmers. But as we grapple with how to do this, we must keep in mind the motivation and strength of even the poorest farmer. Accordingly, Dr. Hannah always tells me change is about people.

I would like to put this conference in that context by reading a simple poem, written by a farmer in Costa Rica. His feelings, I believe, reflect the feelings of small farmers everywhere.

I am the one who comes to the city once in a while . . .
I am the one who looks in awe at the city with an open mouth . . .
I am the one who struggles from sunrise to sunrise to bring a better product
to your table . . .
I am the one who thinks everyone has turned their back to me . . .
I am the one with calloused hands and a grieving spirit . . .
yet with the hope of a better tomorrow.
I don't know if my children will be able to continue their education;
they walk barefoot and sometimes cry from hunger.
My shack has a shattered roof, and my five children sleep in the same
uncovered bed.
But I dislike being called 'poor peasant'
Even though I am a poor peasant.
I have pride and I am deeply human . . .
and can show that I am responsible . . .
Just give me the opportunity and I shall produce . . .
I shall produce a better tomorrow for my family and for my country."*

* Reprinted with permission of
Pan American Development
Foundation News - Winter 1985

A basic goal of AID is to create and transfer improved agricultural technology to that poor but strong farmer. To this end, we have provided support over the years for traditional government extension systems. However, in many cases, the payoff has been disappointing. As a result, we continue some of what we have done in the past, but we are using other means of technology transfer to expand and complement public extension.

As I said, our goal is to create and transfer improved agricultural technology, and I would like to discuss with you tonight how we are going about that job.

In thinking about technology transfer abroad, we cannot just review what we have now. A study of the evolution of the U.S. agricultural system is instructive.

As America was developing, a chief source of agricultural information was the country store. It stocked seed and tools and passed on advice from the peddlers who provided their supplies. In fact, my great-great-grandfather was such a peddler here in Michigan.

This tradition, of course, grew and spread. Where would American agriculture be today without the information passed on to our farmers by the farm supply stores and the seed, chemical, and processing companies?

Of course, over the years, American farmers have demanded information and new solutions. Perhaps the most significant step for those purposes was the creation of our great land grant universities. In time, the schools expanded from teaching to agricultural research. But note that only after the first state experiment stations had been in place for several decades, did the agricultural extension system emerge.

In short, at an early date, the U.S. had a private sector that transferred technology. Then came education, then research, and finally extension, in that order.

We need to remember the time and sequence of events that went into our experience before we try to apply, ready-made and instantaneously, our model to developing countries.

In most of these countries, the agricultural system is very different from ours. With the exception of cash crops, very little technology transfer is made by private firms. Research efforts are often rudimentary or nonexistent. Countries generally have some form of public extension services, but they are usually ineffective or inadequate for the task facing them. Often, in terms of impact, these systems exist in name only. Extension workers in poor countries have a difficult task. In the first place, because of the shortage of research programs, they often have little to extend.

Furthermore,

- o most extension workers, in theory, service a huge number of farmers, many of whom are very poor, on small holdings;

- o the extension workers are usually men and they tend to bypass women who often do much of the farming;
- o much of the extension worker's time may be spent on administrative work for programs that are not production-oriented;
- o they often find it difficult to reach farmers because of primitive or nonexistent transportation and communication networks. Shortages of vehicles and fuel compound the problem.

We, at AID, have given a lot of thought to the approach to be used in the transfer of technology to poor countries at their different stages of development. Obviously, all poor countries are not alike.

We think the appropriate transfer system for a given country will depend upon the severity and nature of its problems.

For example, take Egypt--a compact country along the Nile with an extensive road network and good communications systems in place. While further attention to research is required, there are suitable technologies to transfer. Accordingly, we are strengthening the public sector extension system there because it will work.

At the other extreme, in several low-income countries in Africa, it is much more difficult. Major attention must be paid to research to create more productive technology suited to local conditions, but the population is widely dispersed and much of the country is accessible only by jeeps, camels, and horses. Here we must explore the use of alternatives like the itinerant peddlers and radio to spread agricultural technology. It is likely to be some time before such countries can effectively use or certainly afford a country-wide government extension organization.

Many of you have gone through the same thought process I have set forth here, and I know you agree that a simple transfer of the U.S. research and extension model to the developing world just won't work. We must do the job of technology transfer in a way that takes into account the human and financial resource limitations of these countries.

Accordingly, few AID projects today focus exclusively on government extension systems. Instead, we are exploring alternative approaches to complement government extension systems.

I would like to share two of these approaches with you:

- (1) Private Sector Extension
- (2) Mass Media Communications

Let's look first at Private Sector Extension. Private firms can play a major role in promoting technological change. As I mentioned, in the U.S. and other developed countries, a large amount of information is provided to farmers by seed producers, suppliers, and processing firms.

In my own family, I remember the local tomato processor delivering a full production package to my father who was a farmer in western Michigan. Tomato technology was passed to my father, who had never grown tomatoes for sale, by the tomato processor.

One of my favorite Third World examples of the key role that the private sector can play involves an asparagus canning company in a valley north of Lima, Peru. The company received an AID grant to train farmers on the fine points of growing asparagus. The farmers had never grown asparagus before; they probably never heard of it. Through this training program, the farmers learned a totally new technology, while at the same time the company's quality control standards and production delivery schedules were met for shipment to France.

There are many such examples in the Third World:

- o In Zimbabwe, private firms are promoting agricultural extension and marketing to the small farmers. No fees are charged for these services but inputs are sold and produce is purchased;
- o In the Philippines, at least 11 firms are providing extension, processing, and marketing services to small farmers. The largest program is run by Planters Products and it is reaching over 500,000 farms. It includes: soil testing to assist in proper fertilizer application; farm training classes and field demonstrations; radio farm programs; and even a magazine that disseminates market information.

We are encouraging our AID Missions around the world to support this type of private sector extension through training grants and other programs.

Next, let me discuss how we are using Mass Communications for technology transfer.

AID is using radio, TV, and peasant newsletters to bring information to farmers. I am reminded of my boyhood in Michigan where, most mornings as we milked cows, we listened to the farm news.

In developing countries today, a large percentage of even the poorest farmers have radios and we are using this tool. For example, through the village education project in Guatemala, we have learned what mass media can accomplish in agriculture. In this project, information was tailored to the farmer's setting and disseminated through radio and peasant newsletters. This has proven to be a cost-effective way to transfer new technology to small farmers.

The major challenge is expanding such pilot projects into national programs. The Philippine "Massagana 99" program is one national program that stands out. This rice promotion campaign accelerated the widespread adoption of high-yielding rice varieties and improved cultivation techniques. A key element was a mass communication campaign using radio and printed materials in combination with intensive training of extension agents. Note that we had the technology to transfer.

To expand these efforts, AID is planning a new "Communications for Technology Transfer in Agriculture" project to backstop communication efforts around the world. Also, this project will go a step farther than most. We will "sell" new agricultural technology, in effect, by applying retail marketing methods.

We know such sales technologies have been used successfully in health and family planning, and we think they are applicable to agriculture as well.

As I have indicated, government extension systems have a role in the Third World, and so I would like to discuss now we are trying to improve our efforts here.

We must always remember that increased production by the farmer is our ultimate goal. This emphasis has several implications for public extension:

- o we must relieve extension agents of non-production responsibilities such as regulatory enforcement;
- o we must strengthen training and technical backup of extension workers;
- o we must focus research and extension on improved technologies for priority crops and animals;
- o we must increase dialogue between extension workers and researchers. This includes participation in on-farm research and feedback to the researchers from the farmers;
- o we must coordinate public sector extension with mass media approaches and private sector activities.

Finally,

- o we must increase the use of female extension workers and direct attention to the needs of women and other low resource farmers.

Let me provide two examples of innovations in public sector extension where AID is working:

- o In Uganda and Malawi, we are supporting higher level training in critical subject matter areas for a select number of extension agents.
- o In Honduras and Ecuador, we are placing extension agents alongside researchers as active participants in adaptive on-farm research. We find that this increases the technical competence, motivation and effectiveness of extension workers.

We think that public extension programs can have an important role in some countries. In other countries, we will need to await the development of more technology to extend and somewhat improve circumstances.

However, in most Third World countries, public extension will play a role, but not as large a role as we had once thought, for at least the next decade. In those countries, extension systems will place a great deal of reliance on mass communication and will seek ways for the private sector to, in effect, play part of the traditional extension role.

Before I close, let me say a word or two about Africa. We are, of course, providing enormous amounts for the victims of the famine. We have provided over three million tons of grain. That is hard to visualize but, if you put that grain into 50 pound bags and laid them end-to-end, they would circle the world twice.

In brief, we need a vastly improved capability in African countries to generate, adapt, and transfer agricultural technologies suited to African conditions. The Administration is committed to this effort. In two recent meetings, the President has personally told me of his commitment to famine relief efforts. On January 3rd, he issued a strong statement on Africa. Just a few weeks ago I traveled to Africa with Vice President Bush. I saw him look at the hungry people in those refugee camps and say, "Let it not happen again."

This is where the great capabilities of the American agricultural technology development and transfer system can make a powerful contribution. However, the task will require a great deal of creativity and sensitivity to current African needs and conditions. I invite those of you at this conference to help us devise more effective approaches to technology development and transfer. This must be suited to the conditions of developing countries and combine the unique contributions of both the public and private sectors.

This is clearly an enormous challenge. I believe it is a challenge we can and must meet.

INTERNATIONAL TECHNOLOGY DEVELOPMENT AND TRANSFER*

Introduction

May I first commend the sponsors of this conference. To my knowledge, this is the first meeting of its kind.

I am not fully familiar with all the circumstances which led to the planning of this event. However, I suspect the conference is largely the outgrowth of recent emphasis on the subject by the Extension Committee on Organization and Policy (ECOP)--as set forth in its excellent report entitled, "The International Mission of the Cooperative Extension Service." This report, published in early 1984 by an ECOP Task Force chaired by Gordon Guyer, proposes that the Cooperative Extension Service commit itself to a major strengthening of its international program dimensions and sets forth a number of specific recommendations for achieving such a goal.

Negative Attitudes Towards Extension

Such an expression of interest and commitment on the part of the leadership of the Cooperative Extension Service is most timely because many involved in international agricultural development activities are questioning the value and contributions to development efforts of Third World extension programs.

Furthermore, some are expressing doubt whether the U.S. Cooperative Extension Service has much to offer to the development process in Third World countries.

Two weeks ago in Rome, I participated in a conference dealing with ways in which food production might be substantially increased in Africa. One well known African agricultural development specialist indicated that his primary recommendation for expanding agricultural output would be to invest substantially greater resources in commodity related research. This specialist, a member of a U.S. land-grant college of agriculture faculty volunteered the following additional advice: "Do not invest in extension."

A recent summary of "AID's Experience in Agricultural Extension" prepared as a part of the Administrator's Review of AID's Agricultural Programs, stated the following: "Since the 1950's, AID has had very little involvement in the strengthening of "traditional" national agricultural extension institutions. In the sixties and seventies, a relatively strong consensus developed within the Agency that the "U.S. model" of agricultural extension was inappropriate for developing countries." A 1975 review of AID's extension efforts in the Andes concluded that the programs had "almost no positive impact, either in terms of institution building or in increased productivity." A well respected agricultural development specialist in AID recently concluded: "I don't see much of a role for the Cooperative Extension Service in Asia,"--his region of program responsibility.

*Remarks by Dr. E.T. York, Jr., Chairman, Board for International Food and Agricultural Development at the Conference on Extension's International Role, Michigan State University, April 1st, 1985.

Direct Transfer of Technology

These negative attitudes towards extension and its contribution to the development process seem all the more disturbing in view of the fact that the concept of technology transfer was the very foundation of America's earliest development assistance efforts. You will recall that President Harry Truman, in Point IV of his 1949 inaugural address, proposed that the U.S. "embark on a bold, new program for making (our) scientific advances...available for the improvement and growth of the underdeveloped areas of the world."

The Technical Cooperation Administration--the first of AID's predecessor agencies--came into being with the assumption that much of our agricultural technology could be transferred and applied to developing countries. Therefore, in the early days of our development assistance programs--in the 1950's--heavy emphasis was placed on employing U.S. extension personnel in Third World countries.

As these programs were implemented, it soon became obvious that there were too many farmers in the LDCs for U.S. extension advisors to impact directly. Accordingly, local institutions had to be created or identified and assisted. This, then, became the task of American specialists rather than advising farmers directly. Emphasis was placed on developing extension type organizations and setting up special training programs for dealing with extension methodology, practices, and programs.

There are many variations of these early approaches to extension and many channels through which extension activities were carried out. Community development programs were organized throughout Asia. In some regions the work was carried out under "rural development" labels. Agricultural cooperatives or "servicios" with major extension dimensions were developed throughout Latin America.

Why did these early extension programs not achieve greater success? Why was Truman's goal of sharing America's abundant agricultural technology not realized?

There are undoubtedly many reasons for these early failures. The general consensus today is that many of these early efforts were not successful because there was little or no relevant or appropriate technology to extend. Most of the technology which had contributed to the productivity of American agriculture could not be effectively transplanted intact to other nations. Furthermore, these Third World countries at that time had little or no research capacity to adapt this transferred technology or to develop their own.

While making some erroneous assumptions about the transferability of technology, we also seem to have ignored the historical evolution of our own agricultural programs in the U.S.--where research programs were generating technology for many years before a formal extension service was created.

The difficulty experienced in the 1950's in effectively transferring much potentially useful technology has been further substantiated in more recent experiences in some of the International Agricultural Research Centers. For example, after the dramatic breakthroughs in improving rice germplasm in the

International Rice Research Institute (IRRI) in the Philippines, it was thought that it should be relatively easy to find rice cultivars from Asia that could substantially improve rice production in Africa in relatively short order. However, after ten years of trials in which over 2,000 imported varieties were evaluated, the West African Rice Development Association (WARDA) has concluded that only 2 of the 2,000 imported varieties were yielding as well as the best local varieties.

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) with headquarters in India was encouraged in the mid-1970's to extend its sorghum and millet improvement research to West Africa. Eight years later the leader of the ICRISAT team concluded: "Variations in rainfall, soil, and farming conditions probably explains why the direct transfer of high-yielding sorghums and millet varieties to West Africa has been relatively unsuccessful..."

These experiences have led many to believe that in Africa, and in many other parts of the developing world, priority attention must, even today, be given to research rather than to extension.

But what are some of the other factors which contribute to the apparent lack of success of extension in many developing countries and the negative attitudes towards extension? For example, what accounts for failure to achieve production increases where improved technology is readily available? Why have extension programs not been successful in getting farmers to use such improved technology?

Let me mention several reasons.

Policy Constraints

The governments of many developing countries have given too low a priority to agriculture in their development plans. Indeed, many governments have implemented taxation and pricing policies which seriously constrain agricultural development.

Carl Eicher of Michigan State in a recent paper refers to numerous studies throughout Africa which provide evidence that many countries (both capitalist and socialist) are pursuing negative pricing policies which dampen incentives to produce food and export crops and encourage black market operations.

Eicher cites several African experiences to illustrate this point. For example, he suggested that in Mali the government pricing policy for small farmers in the large irrigated rice production scheme could be labeled as "extortion". A two-year study in 1980-81 has shown that it costs farmers 83 Malian francs to produce a kilo of rice but that the government pays farmers only 60 Malian francs per kilo. "Does it seem irrational," Eicher asks, "for rice farmers to smuggle rice across the border into Senegal, Niger and Upper Volta where they can secure 108 to 128 Malian francs per kilo?"

Egypt provides another good case in point. Extensive demonstrations throughout the country conducted as a part of an AID-sponsored project in the early 1980's, indicated that a relatively simple package of improved technology could increase average wheat yields by some 60 to 75 percent. The validity of

these potential gains was unquestioned. Yet farmers did not respond. Why?

The simple reason was that the government-imposed fixed prices for wheat were so low that there was no incentive to use the improved technology to achieve increased production. Alternative enterprises were much more attractive. It is of interest to note that the controlled price for the grain was lower than the uncontrolled price for straw. This situation resulted in farmers mixing grain with straw to realize greater returns from the mixture sold as straw than from selling the grain separately.

The low prices set by the government grew out of the fact that bread is heavily subsidized and the government wanted to keep the cost of wheat as low as possible to reduce the level of government expenditures for the subsidy. The effect, however, was to shift the country from a position of self-sufficiency in wheat in the 1960's to one of having to import 75 percent of its needs 20 years later.

As the Egyptian Minister of Agriculture himself pointed out, the Egyptian government was in the incongruous position of paying U.S. wheat farmers several times more per bushel for imported U.S. wheat than it was paying its own farmers for domestic production. The ultimate effect was that the government was paying more for the total wheat used than it would have paid had it maintained a price for its farmers which would have encouraged rather than discouraged domestic production.

No matter how much effective technology may be available or how good the extension programs may be in disseminating this technology, little positive results may be obtained if the farmer does not have economic incentives to use the technology. Farmers may not all be able to read and write, but they can all count.

Inadequate Infrastructure, Markets, Inputs, Etc.

In addition to lack of price incentives, several other key factors may limit the transfer and adoption of improved technology. These include inadequate and unreliable markets and storage facilities; poor roads and transportation systems for marketing commodities and securing inputs; unavailable, untimely or unduly expensive supplies of seed, fertilizer, pesticides and other inputs; inadequate credit; etc. These factors are so obvious that they need little elaboration. Yet each can represent a serious constraint to the effective utilization of improved technology. Certainly, extension efforts are futile when the inputs and services associated with the target technology are not available to farmers.

Weaknesses in "traditional" National Extension Systems

Some of the current negative attitudes towards extension and its future usefulness in Third World countries undoubtedly grow out of the problems which limit the effectiveness of "traditional" extension programs in these countries. Let me refer briefly to some of these problems.

First is the lack of close linkage between research and extension. Although the research and extension functions are usually centered in ministries of agriculture, close, complementary relationships are seldom observed. This works to the detriment of both organizations--and ultimately to the detriment of the country's agriculture.

Another major problem is the nature of the extension organization itself. All too often, extension is more of a political arm of the ministry or is concerned with regulatory, data gathering, or service functions of the ministry rather than with the type of informal educational and organizational leadership role which characterizes the Cooperative Extension Service in the U.S.

Traditional extension organizations all too often essentially ignore the specialist or subject matter leadership functions and concentrate on building up large numbers of field personnel--many of whom are poorly trained and ill-prepared to function as field agents. The absence of well trained specialists and program leaders becomes all the more serious in light of the weak linkages which exist between research and extension.

Salaries of extension personnel are often extremely low, making it necessary to seek supplemental sources of income. Despite the low salaries, operating funds are usually even more inadequate, with limited resources for travel or other necessary functions including badly needed training. Transportation for field personnel is often extremely limited or nonexistent.

Many Third World extension services would be far better served if they had substantially fewer but better supported personnel. Often, however, government policies do not encourage this. Egypt, for example, has a law mandating that all university graduates, upon request, be given employment by the government. This has resulted in far more personnel being assigned to extension than can be effectively used or supported.

Another weakness of "traditional" Third World extension organizations is their general failure to involve women in their programs--despite the important role which women play in the agriculture of most developing nations. Jacqueline Ashby describes the problem well in her paper entitled, "New Models for Agricultural Research and Extension: The Need to Integrate Women," which states "Agricultural extension is oriented primarily towards male clientele. Extension agricultural agents are essentially always male. In many societies customs inhibit women's contact with unrelated members of the opposite sex, including extension agents...In general, extension training for women tends to relegate them to non-agricultural activities. In sub-Saharan Africa where female farming is of major importance, extension programs for rural women have historically concentrated almost exclusively on women's homemaking activities. A recent survey of agricultural training centers in Asia indicated that out of 9 countries which provided for enrollment of females, only one, Sri Lanka, had successfully recruited women for farmer training."

Overall, it is apparent that women in agriculture are not receiving a level of attention, assistance and support through extension commensurate with the important role which they play. As a result, extension is less effective and agricultural development goals are less likely to be realized.

Effective Extension Programs

Now, let us look at the other side of the coin for a moment. I do not mean to suggest that all LDC extension programs have been ineffective or suffer all the deficiencies and weaknesses to which I have alluded. Many examples of successful efforts could be cited. The World Bank has provided substantial support and encouragement for the Training and Visit System of extension and many believe this is an effective type of extension effort. However, there has been, by no means, universal acceptance or endorsement of the T & V System (or any other for that matter). Furthermore, widespread reservations and concern about extension, referred to in the early parts of this paper, continue to be evident.

Technology Transfer Through the Private Sector

One frequently hears the suggestion that greater emphasis should be placed in developing countries upon technology transfer through the private sector in contrast to public sector extension organizations. Indeed, many examples can be found of successful private sector technology transfer initiatives. For the most part, however, they are limited to well-integrated cash crop operations where farmers--often under contract--are provided not only the improved technology in the form of well-defined instructions for growing the crop, but also credit and a package of inputs including seed, fertilizer and pesticides necessary to apply the technology. Furthermore, the farmer is also assured of a market for his production.

Such organized and well-integrated efforts address and remove many of the constraints limiting the adoption of improved technology discussed earlier in this paper. Successful programs of the British American Tobacco Company in East Africa, the Kenya Tea Development Authority, programs with horticultural crops for export in Haiti, Dominican Republic, and Guatemala, coffee in Costa Rica and Honduras, pineapples in the Philippines and Thailand, and so on--all speak to the effectiveness of this type of private sector effort.

We should recognize, however, that such approaches have very limited potential in a more traditional agriculture where the great majority of farmers are concerned with producing food crops for domestic consumption. Accordingly, at this stage of development, it is highly unlikely that the private sector can be counted upon to assume much of the responsibility for technology transfer efforts in Third World countries--except for such specialized commercial crop production for export as indicated.

International Technology Development

The topic assigned to me has two dimensions--technology development and transfer. I have concentrated primarily on the latter since this relates to the basic theme of this conference. However, let me address the former as well for a moment since the two are, or should be, essentially inseparable.

Without insulting your intelligence, let me suggest that there are many contributors to the development of agricultural technology from a global perspective. They might be divided into three major groups:

- 1) The research organizations, public and private, in the so-called developed or industrialized nations;
- 2) The research organizations, primarily public, in developing countries; and
- 3) The International Agricultural Research Centers.

Let me comment briefly about each, starting with the last.

Currently, there are 13 International Agricultural Research Centers which function as a part of the Consultative Group for International Agricultural Research--referred to as the CGIAR System. The programs of most of the Centers are oriented towards specific food commodities. The primary objective of the System is to improve the food supplies of developing nations by contributing to the development and enhancement of national agricultural research systems.

The Centers have major training components in addition to their research emphasis. Much of the commodity research is oriented towards the development of improved germplasm. The ultimate objective is, through a multidisciplinary approach of addressing production constraints, to use improved cultivars to achieve the goal of increased and more stable food supplies in developing countries.

The two original International Centers, IRRI in the Philippines concerned with rice and CIMMYT in Mexico concerned primarily with maize and wheat--have made significant contributions in their respective areas of responsibility. In fact, they are credited with making major contributions to the Green Revolution in cereal production in Asia over the last 15 years. Most of the other Centers continue to offer great promise.

Several other international centers have been organized and are beginning to function outside the CGIAR System. These include centers concerned with soils, water management, insect physiology, fertilizers, aquaculture, bananas, tropical vegetables, and others.

By any measure, these international agricultural research centers are becoming major contributors to the development of agricultural technology globally. They are primarily concerned with applied research, the products of which can be readily adapted to developing country situations. It should be recognized, however, that the IARCs are concerned with food crops and that the commercial export crops which received the major share of research attention under colonial governments may become somewhat neglected unless they are given special attention.

The technological developments of research organization in industrialized countries, as noted earlier, may have limited direct application to developing countries. This does not diminish the potential value of such research to developing countries. It does, however, emphasize the necessity for more adaptive research in the developing countries themselves to take advantage of the work done in the industrialized nations. Furthermore, both the IARCs and the developing countries' research programs must look to the developed country

research organizations for most of the basic research needed to point the way to some of the longer term advances in food production globally which must be realized.

Agricultural research organizations in the developing countries vary greatly in their stage of development and their degree of sophistication and effectiveness. Several countries like India and Brazil have excellent organizations which are serving their countries well. Furthermore, some have even reached the stage where they, themselves, can provide technical assistance to other developing countries. Many other programs, however, are weak, ineffective, and need continuing assistance.

While few, if any, would question the need for continued emphasis on generating improved technology, I seriously doubt if an absence of improved technology is the primary factor limiting further advances in agricultural productivity in many countries. I say that in response to those who contend that we should emphasize research--not extension--under the assumption that there is little or nothing to extend. While this may have been the case at one time and under certain circumstances, I don't believe it is generally the situation today. In many countries better farmers achieve production levels several times the national average. And in most developing countries there is technology available to facilitate improvements. The principal exception may be in parts of Africa where the on-shelf technology for some commodities may be quite limited.

My point is that as we make the case for continued development of improved technology, we should not ignore the opportunities for progress through efforts to better utilize the technology already available.

A Non-Traditional Approach to Extension

This paper has examined some of the problems associated with "traditional" extension organizations in developing countries and the apparent failure of many of these organizations to achieve desired results. I would like to conclude my remarks with suggestions concerning a "non-traditional" approach to extension in the developing world.

Let me say first of all that I am unpersuaded by many of the arguments that extension is unproductive and unneeded because other factors limit the adoption of improved technology. If price policies or inadequate markets or unavailable inputs limit farmers' acceptance of the improved technology, one should not ignore the technology, but rather should concentrate on removing the constraints which limit its usage. We are dealing with holistic systems where there are many constraints to achieving desired objectives. Any one of these constraints may become the address, and to the extent possible, remove all the major constraints which limit the achievement of our objective.

Significantly, a well-functioning extension organization can be the vehicle not only for providing the needed technology but also for addressing and helping to remove some of the non-technological constraints as well. I would like to pursue this point for a moment but first let me make a distinction which I think is important.

This is a conference on the "International Role of Extension." My assigned topic is "International Technology Development and Transfer." In my opinion, the extension function and technology transfer are in no respects synonymous as the title of my paper would seem to suggest. There are many channels or modalities for transferring technology, one of which is extension. On the other hand, extension is or should be concerned with much more than technology transfer.

While I was in the Federal Extension office during the Kennedy administration, rural development programs were being pushed very strongly. I was asked one time by an Assistant Secretary of Agriculture what role did I think extension should play in rural development. My reply was, that extension had a very obvious "educational and organizational leadership role." This is a role which would go far beyond the usual concepts of extension as an informal educational program primarily concerned with dispensing useful information.

One of the most important roles of the extension service I have known and worked with over the years, is that of helping people organize and deal collectively with problems which limit the achievement of objectives. Most of us have seen extension help farm and rural people organize to develop reliable or less expensive sources of inputs, to create more reliable markets for their products, to encourage the development of better roads, schools, or address other community needs, to better deal with public policy issues, etc.

This organizational responsibility goes down to the farm level where extension agents help the farm family better diagnose its problems and plan, organize, and manage its resources to achieve desired objectives. Obviously, this is far more than transmitting information; it is basically aimed at helping farm families to become more competent managers and decision makers.

With such a broader mission for extension in mind, let us look at some of the important dimensions of a "non-traditional" extension organization for the future.

Let me first emphasize that I would not advocate that we try to export the U.S. extension model, as such, around the world. Yet there are certain principles which have undergirded U.S. extension efforts which I believe can and should be applied in Third World situations.

For example, I am aware of no country where the tripartite land-grant university model would likely be adopted intact. In most countries, agricultural research and extension functions are in ministries of agriculture while the agricultural colleges are in ministries of education. Very few Third World faculties of agriculture have major agricultural research missions and still fewer have significant responsibilities for extension.

Yet the concept of close, complementary relations between and among these three functions is important and should be encouraged. Of course, most critically needed is a close, working relationship between research and extension. The process of generating new technology and getting it used should be a continuum, reaching uninterrupted, from the scientist or researcher who generates the technology to the farmer who uses it. In fact, the point at which research ends and extension begins becomes increasingly difficult to discern. In

view of this, every effort should be made to develop close complementary working relationships between these two functions.

The possibility of closer administrative ties between these functions should be explored and implemented if feasible. Several of us in this Conference were a part of a mission which recommended to the Government of Egypt that the research and extension organizations of the Ministry of Agriculture be brought together in a single structure with the two component parts under a common administrative head. The government accepted and has implemented this recommendation. Such an organizational structure offers some of the same advantages enjoyed in the U.S. land-grant model in terms of facilitating close interactions between research and extension. Something like this, I believe, should be feasible in many developing countries.

Furthermore, through the mechanism of research grants to university faculty and through appointments by universities of research and extension personnel located in ministries of agriculture, close ties can be developed with the teaching functions as well.

Many Third World extension programs need to give much greater emphasis to developing the subject matter specialists or program leader functions. Such personnel are key to effective field programs and are all too often neglected in traditional developing country extension organizations. Such personnel in specialist-leader positions should be just as well trained as their research counterparts.

Field personnel in traditional extension services need to be relieved of the many political, regulatory, and service functions which detract greatly from the role of an extension professional.

In many developing countries the extension mission could be performed much more effectively with fewer personnel, but personnel better trained, better compensated and better equipped with the tools to do their job. Appropriate incentives need to be provided to attract and retain good personnel and to recognize good performance. There should be continuing opportunities for training and professional improvement.

Extension personnel should exercise more strongly the organizational leadership role to which I referred earlier--helping the people within their area of responsibility to organize for group action in dealing with problems which limit the achievement of their goals.

Extension must be willing to try new and innovative techniques and educational methods. There is need to explore the potential of new communication techniques that can reach and influence large numbers of people at relatively low cost. Extension should work through private sector organizations wherever such groups can be helpful in enabling the extension organization to achieve its goals.

Special attention needs to be given to the needs of the rural family and especially women. More specifically, extension must give greater recognition to the important role which women play in the production and marketing of

agricultural commodities.. The provision of equal access to agricultural information and of effective communications with women requires that agricultural staffing patterns change to include trained female workers.

These are just a few of the important elements of what I would consider a "non-traditional" approach to extension. In my opinion, the incorporation of these elements could greatly enhance the effectiveness of many Third World country extension programs and promote the basis for much needed improvements in the agriculture of these countries.

I have no doubt that the U.S. Cooperative Extension Service can play a vital role in contributing to the further development of effective extension organizations throughout the Third World. I hope this Conference can help chart the course for such meaningful involvement.

EMERGING DIRECTIONS IN INTERNATIONAL RESEARCH AND EXTENSION

J. K. McDermott, Farming Systems Support Project, University of Florida:

In addressing this topic, the best I can do is to speculate. It is difficult to know if such speculation is (a) wishful thinking, (b) sound reasoning, or (d) some sort of hope of "what could be." Perhaps my own aspiration is that it will be to some extent a self-fulfilling prophecy. Whatever is emerging will likely be related to what has gone on in the past, in other words another phase in the evolution of international technical assistance. When one looks at the U.S. experience with some perspective, there may be more reason for optimism than is at first apparent.

The Agency for International Development has been quite consistent in its support of research and Extension. This support has taken different forms, but it could be that the zig-zagging has been more apparent than real. Ever since pre-Point IV days, AID and predecessors have been making important gains in human institutional resource development.

If you paint with a broad brush and do not worry too much about precision, you can think of our technical assistance history in four major phases. The United States entered the technical assistance field seriously at the start of the fifties. The first decade, known as the Point IV era (named after the fourth point in President Truman's inaugural address) emphasized Extension. The sixties, could be called the institution building decade, with emphasis on universities and research. We sort of lost direction in the seventies, which was the poorest of the poor phase and we are now in the fourth phase which may be identified by the unfortunate label "farming systems research and Extension" (FSR/E).

This relative stability is highly significant, it seems to me, because it demonstrates a sort of national mentality that places a high value on the human resource and on institutional development. If this is true, it is important to recognize it. When one is in the middle of a zig (or zag), which sometimes approaches 180 degrees, the concept "stability" does not seem relevant. Thus, a broader perspective may be useful. AID's apparent vacillation may be more a case of "bracketing the target" in field artillery terms than vacillation.

There are, of course characteristics of the Agency that are not compatible with human and institutional resource development.

- a. Human and institutional resource development are long range types of programs, not compatible with the two-year personnel assignment which is AID policy.

Paper presented at the national conference, "International Role of Extension: Future Directions", Kellogg Center, Michigan State University, East Lansing, Michigan. April 1, 1985

- b. There is an overwhelming tendency among donor agencies to measure themselves and their personnel in terms of money. This causes a particular mischief for AID, which in the field of agriculture and especially agricultural technology has access to intellectual talent that no other donor can match and which is not reflected by the amount of money moved. It is my judgment that AID sells itself short, far short, in assessing its own potential.
- c. There are some comical things for AID. I heard two explanations, from senior AID officers, for the declining emphasis on institution building in the seventies. One was that "we had poured a lot of money down that rathole and we are not going to pour any more." The other was that "we have spent a decade building institutions and now that they are built we are going to start using them." This was what someone has called "evaluation by assertion."

The second major actor is the University, which has been involved with AID throughout most of its history, in a curious love-hate relationship. AID is by far the Universities' major channel to international work and their major source of funds. AID has excellent access to LDC problems which it shares with universities.

The University has been the Agency's major implementing agent, since it started its reduction in manpower years ago. At one time AID was an implementing agency, but those days have long gone. Perhaps the heyday of the University was in the sixties, but it has long been a major implementer since then, well before Title XII. When the Agency was an implementing agency, universities were a major source of staff. Most Point IV hands were county Extension workers.

The universities have played another major role. There has been many a call from AID for university help on budget in the Congress. Universities responded, most of the time effectively.

But through most of this history AID and the universities have fussed with each other. The collaboration has not been a friendly one. You cannot generalize about AID, however, any more than you can about the Universities. There is not a single AID on most issues. The evidence is that they are both going to be in international technical assistance a long time, and that the fussing relationship is going to continue.

There is talk of an AID-University partnership. I don't think the AID-University relationship can be described as a partnership. The universities, by and large, seem to be content with being AID's implementation agent, and the recipient of an occasional grant. They do want more contracts, but still seem content with their status as contractors. There is little evidence that the University community has helped AID solve some of its tough program and strategy problems in research and Extension.

There seems to be little doubt that the major contribution the United States can be expected to make to the LDC's is closely associated with our own Land-Grant history--our own experience in institutional development, human resource development, and technology innovation in agriculture.

It is so much a part of our culture that we take it for granted. Each of us can do his own thing, often a little thing, and the system works. There is no pressure to understand the system, and the farther we get away from our roots the less we understand it. When we deal in international technical assistance, we do not have the system. One of the jobs is to help develop a system that will do what our did. We have done little in analyzing the system. With more than a quarter of a century of experience, we have done almost nothing in assembling that experience and synthesizing a technology for helping LDC's develop their systems. If we assemble a team for an overseas assignment, that team is almost completely dependent on its own experience, intuition, and bias. There has been far more work done on the "D" of "R and D" in the development of running shoes or Post-Its than in the development of a technology in our business.

We live by old wives tales, or even worse by myth. One is that the Land-Grant system will not work overseas. Another is that Extension will not work outside the United States. The fact is that we have hardly tried them.

One of the interesting developments of the last decade has emerged under the unfortunate label, "Farming Systems Research." That label is not copyrighted and can be used to mean anything the user wants it to mean. The most useful meaning, now becoming the dominant one, addresses an essential sector of the technology innovation process that Land-Grant types did not take overseas, although they handled it very well at home.

We went overseas with two administrative labels, "research" and "Extension" and tried to use them as concepts. As a result we attended the two ends of the technology innovation process and neglected the center. In the center you cannot tell what is research and what is Extension. We do know a field agent is Extension. We do know that an experiment station or laboratory worker is research. In order to keep the boundaries neat, we avoided the middle. Research, through farming systems research, is moving into the middle, in some countries with good results.

Extension has not made its move to fill in the middle. Most LDC's do not understand the concept of Extension specialist. They have armies of field Extension agents with virtually no technical support. You give U.S. agents up to one month's in-service training a year. Most LDC agents will not receive that in a career. Think about what it would be like to run an Extension service without specialists. We cannot say that Extension won't work overseas until we try it.

EMERGING DIRECTIONS

The model on the next page will help explain some of my reasoning. I would identify two directions that perhaps could be identified as emerging and a third that needs to emerge and may be about ready to do so.

If we go back to our artillery "bracket the target" analogy, we may say that Point IV established the field agent, the institution building movement of the sixties, established the subject matter research. If we are correct in our analysis of the technology innovation process and of the organizational responsibilities it takes to implement it, then we still have a way to go before our plant is complete.

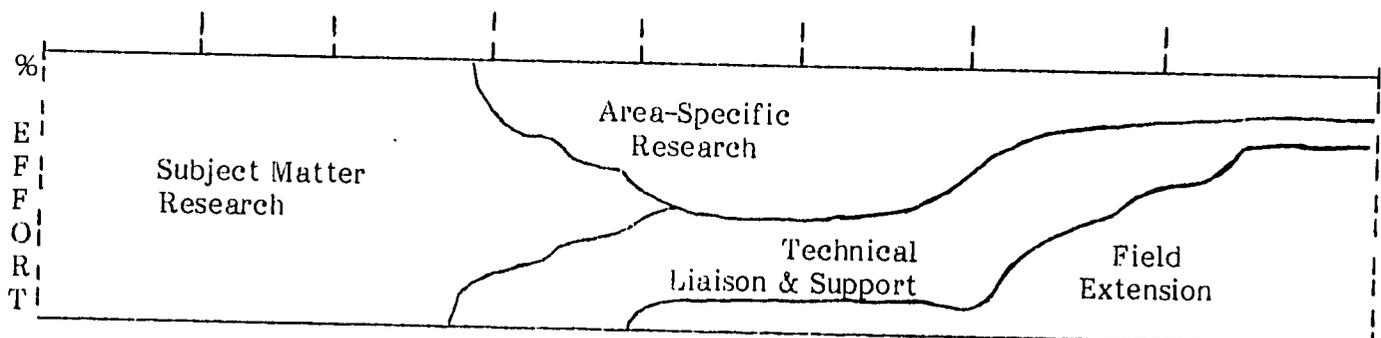
The first emerging direction I would identify is attention to the center of the model. We have had a considerable experience with FSR, which moves research to the right and into the center. It's identified in the model as "area-specific research." This may be called an "emerging" direction after all this time because until now FSR has largely been seen as a discrete activity or movement, not as an essential element of the technology innovation process with the great potential of resorting the integrity of that process.

We also identify movement toward the center as an "emerging direction" because so far Extension has made almost no move toward the center, and with rare exception there is no FSR/E. The vital function is still being neglected. Without it, Extension may not have the capacity to link with research. In the evolution, I anticipate we will move there, but little has happened until now.

The second emerging direction is systematic attention to understanding and managing the technology innovation process. AID now has two projects that aim to help the Agency and its contractors understand and deal with technology innovation. One is the Farming Systems Support Project, headquartered at the University of Florida. It can do some study and synthesis, but is largely a support, action project. The other is a research project with INTERPAKS at the University of Illinois. If this direction can be maintained, i.e., if it is more than an aberration in AID's programming, it could be significant. It is one of the few research and Extension type activities ever to address our own responsibilities in technical assistance.

Technology Innovation Process

World Stock of Knowledge	Science	Tech. Generation	Tech. Testing	Tech. Adaptation	Tech. Integration	Tech. dissemination	Tech. Adoption
--------------------------	---------	------------------	---------------	------------------	-------------------	---------------------	----------------



Technology Innovation System Activities

The eight blocks in the technology innovation process are: world stock of knowledge, scientific research, technology generation, technology testing, technology adaptation, technology integration, technology dissemination, and technology diffusion and adoption.

The direction that needs to emerge is for more collaboration between AID and the universities in programming and strategizing in human and resource development in general and in technology innovation in particular. A proposal has been made, for example, for a long-term AID research strategy in Africa. The bureau needs two kinds of assistance. One is substantive, dealing with methodologies and implementation. The other is for moral and political support. Even if a proposal for a long-term effort is accepted, personnel will face periods of discouragement and will need help and support in staying the course.

It is important, it seems to me, that neither AID nor the universities sell themselves short in this effort. Of course, there is much we do not know about building research and Extension institutions in Africa. But there is much we do know. We know enough (a) to get ourselves off to a good start in the right direction and (b) to learn rapidly. We are not near to using effectively those things we do know. As experts in Extension universities should be able to find some ways to help apply this knowledge.

INTERNATIONAL EXTENSION PROGRAMS FOR U.S. CITIZENS¹

G. Edward Schuh²

Fifty years from now when economic historians write the modern history of the international economy, I am persuaded they will conclude that the twenty-year period we have just come through was the period of most rapid change in our modern history. By modern history, of course, I refer to our last hundred years.

These changes have wrought a completely new economic system for us. They have changed the context in which domestic policies effect our economy. They have changed the politics of the political process. And they have given each of us an enormously more complicated environment in which to make decisions about our everyday lives.

Unfortunately, the educational institutions in this nation have not kept up with our changing economic environment. Among those educational institutions I include our cooperative extension service. I think any review of either the curricula of our universities or of the programs of our extension services will provide all the evidence one needs. But if you want specific examples, just look at how agriculture is trying to deal with its problems, and also consider the response of the U.S. Senate to the problems with Japan. Neither of them reflects any recognition that the world we live in today is any different then it was twenty years ago.

I would like to divide the remainder of my remarks into two parts. First, I would like to discuss the changes in the international economy and in how our country relates to it. Second, I will discuss the things people need to know to get along in the kind of world we now live in. At the end I will have some concluding comments.

Throughout my remarks I will tend to concentrate on economic issues, since that is my comparative advantage. But from time to time I will try to remind us of the political and social issues associated with the economics.

Changes in the International Economy

There are about four major changes in the international economy that have changed dramatically the economics of the U.S. economy and the economics of agriculture. Interestingly enough, the interactions among these four developments are quite great, with the result that the total effect is much greater than the sum of the parts.

¹ Presented at Conference on the International Role of Extension; Future Directions, Kellogg Conference Center, Michigan State University, March 31-April 2, 1985.

² Director, Agricultural and Rural Development, The World Bank, Washington D.C.

Increased Dependence on Trade

International trade has grown faster than world GNP throughout the post-World War II period. In fact, it has grown at a faster rate in every year except three, and two of these were the last two years.

During the 1970's there was a veritable explosion in international trade. The U.S. dependence on trade doubled in the period of 1970 to 1979. And if one extends the period back five years to 1965, our dependence on trade actually tripled. That is really an extraordinary development. Moreover, by the time we started the 1980's, the U.S. economy was as dependent on trade as was Western Europe as a whole and Japan.

An important issue, of course, is that as a country becomes increasingly dependent on trade, its economy becomes increasingly beyond the reach of domestic economic policy. The failure to recognize this obvious and well-known relationship has given rise to many mistakes in policy in this country, it has caused no little frustration, and it has caused no small amount of conspiracy-mindedness. Our economy doesn't respond the way it used to, and when it doesn't, and we don't understand why, the tendency is to look for a conspiracy.

Recent experience with our commodity programs illustrates full well how the increased openness of our economy affects economic policy. For example, when the full costs of the farm program for 1983 are calculated, they will come out at about \$30-35 billion. And that for a section of the economy that generated a net farm income of about \$18 billion! Hence, it isn't that the government didn't do anything for agriculture. In fact, it did a lot. The point is that the forces of the international economy literally swamped the domestic programs--something that would not have happened 20 years ago.

So we find ourselves in a new situation in which we not only have to know what's going on in the rest of the international economy, but one in which the way our economy used to work isn't a valid model for how it works now or can be expected to work in the future.

Emergence of a Well-Integrated International Capital Market

This is probably one of the most dramatic developments we have had in the post-World War II period. If one goes back to the end of World War II, there was no such thing as an international capital market. There were some transfers of capital from one country to another, but these were on a government-to-government basis and we called it foreign aid.

Then, recall that in the 1960's there emerged something called a Eurodollar market, as European bankers discovered they could lend out the dollars they held at a profit. This market grew very rapidly, and eventually converted itself into a Eurocurrency market. This market also grew like Topsy. But then in the 1970's, after OPEC jacked up petroleum prices, we began to hear about petro-dollars. They also burgeoned--huge numbers--with the result that the banks were challenged by national governments and international agencies to recycle them so as to keep the international economy from collapsing. This they did to a fault, of course.

The total amount of credit outstanding in the Eurocurrency market was estimated at about \$1.7 trillion at the start of the 1980's. That is approximately commensurate with the total amount of international trade. Moreover, almost all countries use this international capital market. Hence, it constitutes a link among countries that is every bit as important as is the link through trade.

What we see having happened on the international scene, then, is a shift away from the system that prevailed at the end of World War II, which was essentially a collection of relatively autonomous nation-states tied together with a little bit of trade. Today, we have a truly interdependent economy, with linkages through the international capital market every bit as important as the links through trade.

It is also important to note that the flows through the international financial market now literally swamp the flows through trade. The most recent data suggest that international financial flows last year amounted to \$40 trillion, which makes the \$2 trillion in trade sound like a pittance. And in point of fact, it is. The international financial markets are now driving and dominating the system.

The Shift to a System of Bloc-Floating Currency Exchange Rates

Your eyes may all glaze over at the mere mention of an arcane subject like currency exchange rates. And if they do, that illustrates how much our economic world has changed. Twenty years ago we hardly knew what an exchange rate was in this country, let alone how the markets worked. Today, individual farmers do their hedging not in the grains markets, but in the futures markets for foreign exchange. That is a measure of how sophisticated at least some producers have become.

The shift to a new exchange rate system took place in 1973. Prior to that date we conducted our trade under the old Bretton Woods system of fixed exchange rates. The new system we now have couldn't be more different, and it is difficult to imagine a more significant development for U.S. agriculture. Prior to these changes in the system, of course, monetary and fiscal policy had very little impact on agriculture. After the changes, however, monetary and fiscal policy now affects the agricultural sector through the trade sectors. Changes in monetary policy or in capital flows now induce realignments in the value of the currency. This affects how competitive we are internationally. More importantly, agriculture has now shifted from a situation in which it was almost completely isolated from the effects of monetary and fiscal policy, to a situation in which agriculture bears the bulk of the adjustment to changes in monetary and fiscal policy.

It should be noted that the changes are forced by changed in foreign demand. Moreover, under this new system, there is a direct link between financial markets and capital markets that did not exist before, with the financial markets being international in scope. It's the international flows of capital that are pushing commodity markets all over the place.

Increased Monetary Instability

For reasons that are not completely understood, a great deal of monetary instability has emerged in the international system starting in about 1968. Thus, just about the time the system itself became more vulnerable to monetary disturbances, these disturbances themselves became both more frequent and more significant.

This increased instability is due part to improper U.S. monetary and fiscal policies. But in today's world, monetary and fiscal policies in other parts of the world also play an important role. And of course, just learning how to manage the new systems, with such large amounts of money sloshing around it, has been a major challenge. But what we again see is a situation in which developments in other countries are as important to our own economy as developments which occur more narrowly within our own economy.

* * * * *

Let me conclude this part by noting that the events I have described above--which are major events by almost any standard you choose--have changed significantly our own economy, and especially the economic environment in which we operate. Wendell Wilkie said it 40 years ago with the title of his famous book, but it is even more of an imperative today than it was then. We are truly One World. Events in other parts of the world, whether they have to do with weather in the Soviet Union, the monetary policies of Japan, or community programs in Brazil, have a significant effect on the U.S. economy--on its agricultural sector, on industry, or on the service sector. But what is equally important, and perhaps even more significant, is that what we do in the management of our economy has enormous implications elsewhere as well. The Mexicans put it very well: "Poor little Mexico; borne so close to the United States and so far from God!" But this could be said with equal force about many other countries.

Thus we see that it is not just rhetoric to talk about the international role of extension. If extension is to be relevant to the problems that member of our society face, it has to address our society in the dimensions in which it actually exists. The kind of world we now live in is a truly interdependent economy, one in which developments in other countries are as important as developments in our own economy. To make informed and sensible decisions in today's world, we have to understand the world as it is, not as it used to be. The technological relations in communications, in transportation, and in information have changed our world forever. The only question is "How quickly will we catch up?"

The Content of International Education Programs for U.S. Citizens

This topic deserves a great deal more attention than I will be able to give it. But I will paint with a big brush in order to get to some of the main issues. The emphasis is on what kinds of information U.S. citizens need to have to play their dual role in society--first, as a private decision-maker managing the affairs of their own life, and second, as an informed citizen choosing the people to represent them in our political process, and ultimately in the international system as a whole.

1. The first thing American citizens need to know is that we are now truly part of an international system, and that thinking about ourselves as a self-standing, independent economy is no longer relevant. Moreover, they need to know how the new system works. I have focused on the changes in the economy in the opening part of my remarks. But associated with the economy are various social and political systems. Knowledge about these is equally as important as knowledge about our economic system. Unfortunately, even our own political leaders and the managers of our major economic institutions do not seem to recognize the extent to which we are now part of an international system--one which no longer functions the way it used to.
2. U.S. citizens also need to know and understand the significance of inter-cultural or cross-cultural differences. As an international civil servant, it is easy for me to appreciate the significance of this problem. I live in a world in which words mean different things to different people--even though they are all speaking in the same language. That is a reflection of the different ethnic and national groups represented in the Bank.

This is a general problem, of course. It is an especially serious problem for a large, insular economy such as the United States. By nature we are, and have been, a parochial society, despite the large and sustained flows of migrants that come to us from all over the world. But the great feature of our culture and society is the extent to which we take these migrants and mold them into a common society. In today's world our citizens need to be sensitive to cross-cultural differences, and they need to know what some of these major differences are.

3. Our citizens also need to know a great deal about the international institutions that have a significant influence on their lives as well as the lives of people in other countries. This includes the General Agreement on Tariffs and Trade--the so-called GATT, the International Monetary Fund, the World Bank, the Food and Agriculture Organization, and the UN itself. Not only do we need to understand these organizations, we need to understand U.S. policy towards them, now and in the past.

I'm always amazed at how uninformed we are. When people discuss the identity of my employer, for example, they either think I am part of a Wall Street firm, or part of the U.S. bureaucracy. For the record, the World Bank is neither. Our Secretary of Agriculture and U.S. farmers threaten to take the EC to the GATT over trade issues, not seeming to recognize that

the U.S. has led the charge in insisting that the provisions of the GATT be suspended whenever there is a conflict with domestic commodity programs. In fact, we insisted that such a provision be part of the GATT from the beginning.

The U.S. and other industrialized countries starve the IMF for resources, with the result that the world is suffering a major liquidity crisis. At the same time the U.S. fails to manage its own money supply in a fashion in keeping with its role as central banker for the world. We are on a course to disaster if we persevere in such policies. But how many of our citizens even understand the issues, let alone the facts of the situation?

4. Our citizens need to know something about the major forces driving the international system, and how they affect the United States and its economy. The U.S. is at the nexus of a number of major international political struggles. We are one of the centerpieces of the East-West struggle that has dominated the post-World War II period. But how many of us really understand what the issues are? For that matter, how many of our citizens have ever been exposed to Marxist thought?

The struggle of the developing countries--and the so-called North-South debate--is another major political issue on the international scene. Although we as a nation tend to put this on the back burner, it is without a doubt far more important to our future than the East-West conflict, and it is difficult to imagine a world in which our citizens are more poorly informed. For example, there is nothing that will make an audience of U.S. citizens more hostile than to confront them with data showing how poorly we have done on foreign aid. Everybody knows we are the most benevolent society around--never mind the facts.

Similarly, few people in or outside the government seem to recognize that while we are lecturing other countries to get their economic houses in order, they can do so only if we do the same. We all face a common set of constraints. Burden sharing is not just a political slogan. It is an economic reality.

5. Finally, our citizens need to know as much as possible about those parts of the world affecting their vital interests. Obviously, none of us can understand everything about everything. But we can get on top of the knowledge about those parts of the world that are in our vital interests. If you are a soybean producer, for example, you need to understand how the international system works, as well as knowledge about the major consuming and producing countries. That provides an important "sorter" for identifying the detailed knowledge individuals need to acquire.

APPENDIX

**C. Comments From Participants During
Small Group Discussions**

COMMENTS FROM SMALL GROUP DISCUSSIONS

EXTENSION'S TECHNICAL ASSISTANCE ROLE

DEFINING A ROLE

Development is a process, extension has many roles to support that process
There is a role, but states must define values/reasons for participation
States are starting to appreciate value of international involvements
International involvement is capacity building for staff
Donors need better understanding of what Extension is and can do
Provide an educational and leadership role
Need to package agricultural development services with extension as component
Develop a reputation for being able to deliver
Government institutions not only way to conduct extension
Develop extension models for specific settings

FORMS OF INVOLVEMENT

Model integrated approaches to meet community needs
Extension input with research critical for success of projects
Encourage strong continuing relationships with agencies, PVO's
Project design teams need extension inputs
Mix of media and personal contact needed
Traditional image of short termers is negative--"visiting firemen"
One month assignments too short to be effective unless repeated
Not enough effort to "work oneself out of a job"
Must work and train counterparts . . . support local system
Build alumni relationships--sharing with like people
Follow-up to international assignments essential
Extension staff need to develop an "internationalist" state of mind
Need to consider teams of people--not individual "experts"
Train young professionals, don't rely on near retirees
Link young people with more experienced people
Need county level involvement on international projects
Development teams need to include women
Need to strengthen women's involvement in agricultural development
WID needs to be involved at field level
Need a strong core of subject matter specialist who can relate to research
Research staff should not speak for extension--different perceptions
Need to improve 1890 involvements
Need to involve foreign agriculture students in Extension programs here
Need to recruit staff with international interests
Bring more peace corps people into extension
Consider the whole family in development projects
Extension organizations need help with management and supervision
Extension involvement must be professional

BARRIERS

In some states, personnel and resources too thin for international involvements
 How to gear up a pool of people prepared for international requests?
 Extension staff need encouragement to break away from current lifestyles
 Need more farming systems experience
 Lack of people with longterm commitment to projects, countries
 Need training programs to develop CES staff expertise and experience
 Need to find less expensive ways to gain experience
 Language is a barrier
 Tend to use people known to the system--hard to break in
 Need better system of identifying expertise, vitesa not enough
 Need better orientation for people preparing for work abroad
 Must hold positions for returning agents
 Reentry to U.S. positions need support--take advantage of skills
 Don't penalize staff for taking international assignments in promotion
 Need built-in methods for direct cost recovery of sending people abroad
 Problems of linking hi tech people with subsistence agriculture
 Need better understanding of U.S. extension model before transferring
 Extension does not have a counterpart support system in LDC's like research
 States have given staff no mandate, encouragement to work international
 Lack of support by administrators
 Erratic and unpredictable donor support
 Need better institutional linkages for international involvements
 Identify job needs, don't assume a PhD is always needed
 Need to overcome negative attitudes of AID toward extension
 Funding is uncertain and temporary, can't anticipate opportunities
 Communications are poor even within organizations
 Donor bureaucracies are getting more complicated
 Lack of close linkages between research and extension in LDCs
 Extension depends on balanced research and infrastructure development
 Many LDC's lack the specialist role . . . can't communicate with researchers
 Technologies must be available for small limited resource farmers
 Relationships with individual countries is fragmented

EXTENSION STRENGTHS

Extension more likely to be politically sensitive than technical people
 Staff must know principles of extension and technical area
 Extension strengths--practical knowledge of people and production
 Extension staff do not necessarily tolerate top-down program mandates
 Extension knows how to access information--test research findings
 Extension is action and people oriented, not just technology oriented
 Extension identifies with local people, institutions, starts at the problem
 Capitalize on experiences with youth exchanges--involve youth
 Money may be less important as a motivator for field staff
 Use experience of extension in relating to multiple agencies
 Extension can bridge gaps across ministries and agencies
 Extension can complement research and help define research agenda
 Extension has experience with conflicting agendas, can become a go-between
 Extension able to relate to U.S. farmer resistance to international programs
 International experience provides new insights for local programs

SPECIAL CONSIDERATIONS

Need systematic contact with farmers and researchers
 Extension is a U.S. social institution, other models for other countries
 All U.S. TA's need more sensitivity to local conditions, constraints, desires
 T&V offers principles appropriate for any extension system
 System must better use and share experience of international staff
 Need better networks to share extension models and methods internationally
 Need to build american constituency for international programs
 Extension needs more farmer accountability in LDCs
 Extension needs to be more proactive, aggressively seeking opportunities

COMMENTS FROM SMALL GROUP DISCUSSIONS**DOMESTIC EDUCATION ROLE****IMPLEMENTATION STRATEGIES**

Integrate international dimensions into all programs
 Need to involve people emotionally as well as intellectually
 Take advantage of teachable moments
 Need to be more creative to give international experience at home
 Must relate international issues in ways that touch daily lives
 Don't treat all commodity groups alike
 International exchanges are valuable but take a lot of time to organize
 Process information so people don't reinforce biases on international trips
 Involve youth and adults who have traveled in local programs
 Youth programs need more intense educational component
 Some teacher education programs have good resources
 Staff exchanges may be good way to start programming
 Network with other international oriented groups in communities
 Better use foreign students in helping extension staff sort out the issues
 Better coordinate, use expertise of foreign visitors, students
 Involve campus faculty as resource people, use international experience
 We are doing a poor job considering the magnitude of international issues

ADVANTAGES OF EXTENSION INVOLVEMENT

Extension has a responsibility to educate audiences about world issues, roles
 Can't separate domestic issues from international issues
 Extension agents themselves need a broaden understanding of international issues
 Extension-university support systems ideal for international education
 CES isn't new to controversy . . . bases of public policy education
 International programs good way to involve nontraditional audiences
 Extension can help develop a constituency for campus based international programs
 International perspectives may help extension appreciate minorities, special groups
 Improve leadership development programs with international content, exchanges
 International issues should be on the regular agenda of public policy programs
 Help citizens develop critical analysis skills related to international policies
 Involve legislators and local officials too

CONTENT POSSIBILITIES

People are at many different levels of awareness of international issues
International issues are complex, no easy answers . . . that's part of life
Programs must accommodate local needs, not top-down
Extension needs to be unbiased, present multiple perspectives
Need to work on egocentrism of U.S. audiences in many different ways
Farm financial crisis, world trade issues very real
Linking international issues with the economy is a sure attention getter
Commodity groups maybe interested in competitors, self interests

CONDITIONS TO GENERATE INVOLVEMENT

Can't enlarge extension agenda further without more staff and resources
CES has too many expectations with limited budgets
U.S. citizens need intercultural understanding
States need to develop support, training systems for international programming
Need better administrative coordination, support
Don't take a defensive posture about international involvements, U.S. benefits
Reinforce interests of staff in international programming
Staff who have international experience are more likely to develop international dimensions
Staff need training to speak about international issues
Commitment from top administration needed first
Campus programs also need to be internationalized
Become familiar with parts of the world affecting our vital interests
U.S. citizens need to know about international forces affecting lives
Maintain good communications with local residents about international programs
More funding needed to coordinate curriculum development efforts
Need more research on international marketing issues
International issues difficult to convey/time short/need innovative approaches
Need better educational resources, case studies
Need better sharing of approaches across states
Need better debriefing/program planning and returning agents/clientele

APPENDIX

D. Conference Program

Conference Schedule

Sunday, March 31 Evening

- 4:00- Registration
 7:00 Kellogg Center Lobby
 p.m.
 6:00 John A. Hannah Honorary
 Banquet (Big Ten Room)
 Open Bar 6:00-6:30 p.m.
 Welcome and Introductions
 Gordon Guyer, Director Emeritus
 Michigan Extension Service and Mary Nell Greenwood, Administrator ES-USDA
 Opening address. "Interdependence and the Processes of Development"
 M. Peter McPherson, Administrator, USAID
 Cash Bar—Reception

Monday, April 1 Morning

- 8:00- **The Technical Assistance Role**
 Chair, Dick Rankin
 Deputy Administrator, Management, ES-USDA
 (Room—Lincoln A&B)
 Keynote address
 "International Technology Development and Transfer"
 E.T. York, Chair, Board for International Food and Agriculture Development
- 9:00 "On the Firing Line: Experiences with Extension Agriculture Development"
 Moderator: Art Mosher
 Development Consultant and Retired Rockefeller Foundation Officer
- The US AID Experience**
 Cal Martin, Assistant Director for Research
 African Bureau, US AID
- World Bank Experience**
 Nigel Roberts, Eastern Africa Projects Department
 World Bank
- Extension Experiences**
 Lowell Watts, Director Emeritus
 Colorado Extension Service
- Recent Initiatives: ES-USDA**
 Earl Teeter, Program Leader
 International Programs Office, ES-USDA
- 10:30 Coffee Break
- 10:45 Small Group Discussion
 "What is needed for CES to contribute more systematically to International Programs?"
 Chair, Jake Warnhoff
 Department of Agricultural and Extension Education, MSU

- Noon **Luncheon Program**
 Chair, Jack Claar, Director
 INTERPAKS, University of Illinois
 Speaker: "Emerging Directions in International Research and Extension,"
 Ken McDermott, Farming Systems Support Project
 University of Florida
 (Big Ten Room)

Monday, April 1 Afternoon

- 1:30 **The Domestic Education Role**
 p.m. Chair, James Cowan, Director
 International Programs Office, NASULGC
 (Room—Lincoln A&B)
 Keynote Address: "The Need, Challenge, and Content of International Education Programs for U.S. Citizens,"
 G. Ed Schuh, Director of Agriculture and Rural Development Department, World Bank
- 2:00 Panel Presentations
Mechanisms to Mobilize Domestic Education
 Moderator—Fred Hutchinson, Executive Director, BIFAD
- Title XII Experience in Michigan—**
 Mary Andrews, Program Leader, Michigan CES
- USAID Development Education Grants—**
 Beth Hogan, Project Director
 Development Education Program USAID and James Harris, Head,
 CES Personnel, University of Georgia
- PVO-Extension Linkages**
 Earl Kellogg, Associate Director
 for International Agriculture,
 University of Illinois
- An Inventory of Action—AUSUDIAP—**
 Lawrence Apple, Director for International Programs, North Carolina State University
- Roles of Foundations—**Norm Brown, Program Director, Kellogg Foundation
- 3:30 Coffee Break
- 3:45- Small Group Discussion

5:00 Brief Meeting with Small Group Discussion Leaders
Lincoln Room

Monday, April 1—Evening Open

5:00- Cash Bar and Reception sponsored by Michigan State University;
6:00 Dean Ralph Smuckler, International Studies and Programs, and Dean James Anderson, College of Agriculture and Natural Resources (Big Ten Room)

Tuesday, April 2 Morning:

Concurrent Sharing Sessions

7:30 Continental Breakfast
a.m. Lincoln Room Lobby

8:00- Repeat 9-10 a.m.

9:00 **The CES Role in Supporting Third World Extension Efforts: T&V, FSR&E, Institution Building**—Lowell Watts, CO & Jack Clear, IL (Room 107)

Planning for an Integrated State Program

Marvin Beatty, Associate Director, CES University of Wisconsin and Lawrence Carter, Administrator, Florida State University (Room 108)

Extension Women and Families in Development Programs

Ava Rodgers, Deputy Administrator and Nancy Leidenfrost, Program Leader, Home Economics & Human Nutrition ES-USDA and Nancy Granovsky, Texas Cooperative Extension Service (Room 110)

US-European Cooperation in Rural Development: Research and Extension Implications

Bob Lovan, Program Leader, Community Organization and Decision Making Structures, ES & ERS-USDA and Ken Deavers, Director of Economic Development, ERS-USDA (Voyager Room)

4-H Role in International Development

Ray Crabbs, Vice President, National 4-H Council; Joel Soobitsky, National 4-H Program Leader, ES-USDA (Lincoln B)

Potential for CES-PVO Partnerships

David Miller and Larry Stebbins, Save the Children; Norm Brown & Frank Madaski—Partners; Mary & Mike Score, Mennonite Central Committee (Room 104A)

Degree Work in International Extension

Bill Farnsworth, Utah State University, and John Gross, University of Missouri (Room 104B)

Small Farm Programs: International Implications

T.T. Williams, Director Human Resources Center Tuskegee Institute (Room 103A)

Information Systems for International Development

Mason Miller, Director of Information, Winrock International; Hall Taylor, Communication Consultant; Ovid Bay, Director of Information, ES-USDA; and Don Esslinger, Information Specialist, University of Missouri (Room 103B)

Supporting Extension in the Caribbean—A Case Example

Ray Woodis, MUCIA Caribbean Agricultural Extension Project (Room 102)

County Level Strategies: Communicating with Home Folk

Nancy Radtke, Mel Matchett and Michigan Extension Staff (Lincoln A)

10:15

Review Panel—Reports from small groups and participant observers, Gordon Guyer, Moderator Technical Assistance Session Spokesperson Domestic Education Session Spokesperson Dean, College of Agriculture Representative—James Anderson, MI Director of Extension Representative—Paul Larson, UT

AID Representative—John Eriksson, Deputy Assist Administrator, Science and Technology

Noon Departure (except for those persons contributing to the development of written recommendations and proceedings)

APPENDIX

E. List of Participants

Mary Andrews
48 Ag. Hall
M.S.U.
East Lansing, MI 48824

James Anderson
Dean & Vice Provost
104 Ag. Hall
M.S.U.
East Lansing, MI 48824

Lawrence Apple
North Carolina State Univ.
Office of Intl. Programs
Box 7112
Raleigh, NC 27695

Ovid Bay
Director of Info. Comm.
USDA
Room 3128 South Building
Washington, D.C. 20250

Jack Breslin
Vice President of
Admin. Public Affairs
484 Administration Bldg.
M.S.U.
East Lansing, MI 48824

Norman Brown
Program Director
W.K. Kellogg Foundation
400 North Avenue
Battle Creek, MI 49017

Lawrence Carter
Admin. of Extension
Florida, A & M University
P.O. Box 339
Tallahassee, FL 32307

John B. Claar
Director of Intl. Programs
University of Illinois
1301 W. Gregory, 113 Mumford Hall
Urbana, IL 61801

Denzil Clegg
Assistant Administrator
USDA - Extension Service
330-A Administration Building
Washington, D.C. 20250

James Cowan
Director, Int'l. Programs
NASULGC
One Dupont Circle, N.W.
Washington, D.C. 20036

Ray Crabbs
National 4-H Council
7100 Connecticut
Chevy Chase, MD 20815

Dorothy Dunkley
1448 E. Spartan
Spartan Village
M.S.U.
East Lansing, MI 48824

John Ericksson
Deputy Assist. Admin. Research
Science & Technology Bureau
Washington, D.C. 20523

Don Esslinger
Ext. Info. Spec.
1-98 Ag. Building
University of Missouri
Columbia, MO 65211

William Farnsworth
Ext. Prog. Admin.
Utah State University
Logan, UT 84322

Nancy Granovski
Extension Family Ecm. Specialist
237 Special Services Bldg.
Texas A & M University
College Station, TX 77843

John Gross
Ext. Studies & Evaluation
103 Whitten Hall
University of Missouri
Columbia, MO 65211

Gordon Guyer
Special Assistant to V.P.
484 Administration Bldg.
M.S.U.
East Lansing, MI 48824

James Harris
Pers. & Leadership Dev. Dept.
c/o Lumpkin House
University of Georgia
Athens, GA 30602

Beth Hogan
Project Dir., Dev. Educ. Pgm.
Office of PVD - AID
Room 217, SAB
Washington, D.C. 20523

Frederick Hutchinson
Exec. Director, BIFAD
Room 5318, New State Bldg.
Washington, D.C. 20523

Earl Kellogg, Assoc. Director
International Agriculture
113 Mumford Hall
1301 W. Gregory
University of Illinois
Urbana, IL 61801

Nancy Leidenfrost
Home Economics & Human Nutr.
USDA - Extension service
Room 5404 S. Building
Washington, D.C. 20250

John Lindt
Rm. D645
World Bank
1818 H. Street, N.W.
Washington, D.C. 20433

Robert Lovan
Natural Res. & Rural Development
USDA - Extension Service
3869 S. Building
Washington, D.C. 20250

Frank Madaski
Michigan Agricultural Conf.
11 Ag. Hall
M.S.U.

Cal Martin
Asst. Director for Research
Bureau for Africa
Dept. of State, AID - N.S.
Washington, D.C. 20523

William Mashler
4 Woody Lane
Larchmont, NY 10538

Ken McDermott
Inst. Food & Ag. Sciences
University of Florida
3028 McCarty Hall
Gainesville, FL 32611

Harold McNeil
Director, CES
Room 100 Winslow Hall
University of Maine
Orono, ME 04469

M. Peter McPherson
Administrator
Agency for International Dev.
320 - 21st Street, N.W.
Washington, D.C. 20523

Mason Miller
Communications Officer
Winrock International
Route #3
Merrilton, AR 72110

Arthur Mosher
118 North Sunset Drive
Ithaca, NY 14850

Nancy Radtke
Int'l. Ext. Training Prgm.
48 Ag. Hall
M.S.U.

Norman Reid
Director of Economic Dev.
ERS - USDA
Washington, D.C. 20250

Nigel Roberts
The World Bank, Room A1000
Eastern African Projects Dept.
1818 H. Street, N.W.
Washington, D.C. 20433

Ava Rodgers
Deputy Ass't. Administrator
Extension Service
SEA--USDA, South Building
Washington, D.C. 20250

Edward Schuh
Ag. & Rural Development
The World Bank
1818 H. Street, N.W., Rm. N1136
Washington, D.C. 20433

Mary Score
Menonite Central Committee
1916 Woodward Place
Goshen, IN 46526

Mike Score
Menonite Central Committee
1916 Woodward Place
Goshen, IN 46526

Ralph Smueckler
Dean, Int'l Studies/Programs
211 Center for Int'l Programs
M.S.U.

Joel Soobitsky
National 4-H Program Leader
USDA - Extension Service
Room 3860
Washington, D.C. 20250

Larry Stebbins
c/o David Miller
Save The Children
54 Wilton Road
Westport, CT 06880

John Stovall
Research Div., BIFAD
Agency for Int'l Dev.
1717 H. Street, N.W., Rm. 947
Washington, D.C. 20523

Hal Taylor
Communications Consultant
11500 Fairway Drive
Reston, VA 22090

Earl Teeter
ES-USDA
Rm. 330 Admin. Bldg.
14th & Independence, S.W.
Washington, D.C. 20250

Jake Wamhoff
Ag. & Ext. Education
410 Ag. Hall
M.S.U.

Lowell Watts
10829 Pineaire Drive
Sun City, AZ 85351

Dr. T.T. Williams
Human Resources Dev. Ctr.
Tuskegee Institute
Tuskegee, AL 36088

Ray Woodis
67 Mumford Hall
1301 W. Gregory Dr.
University of Illinois
Urbana, IL 61801

Dr. E.T. York
BIFAD - USAID
1717 H. Sstreet
Washington, D.C. 20523

David Abedon
Rooman Hall
University of Rhode Island
Kingston, RI 02881

Chris Andrew
Assoc. Director, Intl. Programs
USAID/Farming Syst. Support
University of Florida
Gainesville, FL 32606

John Ayers
Project Manager
240 Administration Building
Pennsylvania State University
University Park, PA 16802

Robert Ayling
Director, Planning Policy &
Evaluation
OICD/USDA
Washington, D.C. 20250

Marvin Beatty
Assoc. Dean & Dir., CES
University of Wisconsin
432 N. Lake Street
Madison, WI 53706

Gordon Beckstrand
International Programs
Utah State University
UMC 49
Logan, Utah 84322

Robert Bentz
Assoc. Director, CES
University of Illinois
1301 W. Gregory
Urbana, IL 61801

Robert Bevins
 Prof. Ag. Econ.
 216 Mumford Hall
 University of MO
 Columbia, MO 65211

Jeff Dickerson
 2592 Woodhill Drive
 Okemos, MI 48864

James Brosher
 Assoc. Dean
 University of Florida
 Gainesville, FL 32611

Howard Diesslin
 1 Dupont Circle
 Suite 710
 Washington, D.C. 20036

Jim Burehfield
 School of Natural Resources
 University of Michigan
 Ann Arbor, MI 48109

Samuel Donald
 Dean of College of Ag.
 P.O. Box 1323
 Aleorn State University
 Lorman, MS 39096

H.W. Butler
 Anthropologist Consultant
 Western Illinois University
 Macomb, IL 61455

Gerald Donovan
 Dean of Res. Dev.
 University of Rhode Island
 Kingston, RI 02881

Robert Butler
 Asst. to the Director
 221 Ag. Science
 Washington State University
 Pullman, WA 99164-6226

James Duncan
 Int'l. Ag. Programs
 240 Ag. Hall
 University of Wisconsin, Madison
 Madison, WI 53705

Billy Coffindaffer
 Assoc. Director, CES
 1224 Symons Hall
 University of Maryland
 College Park, MD 20742

George Enlow
 Acting Administrator, CES
 Lincoln University
 900 Moreau Drive
 Jefferson City, MO 65101

Miguel Colon-Ferrer
 Assoc. Dean, College Station
 Extension Service
 Mazaguez, PR 00708

Francille Firebaugh
 Vice Provost, Int'l. Affairs
 Ohio State University
 190 N. Oval Hall
 Cole, OH 63210

Joseph Corley
 Staff Leader, Ag. Econ.
 Extension Service, USDA
 Washington, D.C. 20250

William Flowers, Jr.
 Extension Administration
 336 Burruss Hall
 Virginia Tech.
 Blacksburg, VA 24060

Robert Crom
 Director Cooperative
 Extension Service
 Iowa State University
 Ames, Iowa 50011

Laverne Forest
 Prog. Dev. and Evaluation
 University of Wisconsin
 217 N. Brooks
 Madison, WI 53715

Maria Decolon
 Home Econ. Pro. Dir., CES
 1200 Symons Hall
 College Park, MD 20740

Norman Goetz
 Assoc. Director, CES
 Oregon State University
 CorVallis, OR 97311

James Haldeman
Training Officer
384 Caldwell Hall
Cornell University
Ithaca, NY 14853

Carol Hammaker
Int'l. Prog. Specialist
USDA-Extension Service
Rm 332A
14th & Independence Ave., N.W.
Washington, D.C. 20250

Vivian Harvey
Asst. Dean, College of Home Ec.
Ohio State University
1787 Neil Avenue
Columbus, OH 43210

Christine Hollis
Nut. Comm/Training Specialist
EDC, Inc.
55 Chapel Street
Newton, MA 02160

Maurice Johnson
Asst. to the Dean, Ag. Science
University of Idaho
Masian, Idaho 83843

Lynn Jondahl
Room 492 RB
Capitol Building
Lansing, MI 48909

Joan Joshi
Mgr. CICHE/CES
Suite 710
One Dupont Circle
Washington, D.C. 20036

Christopher Kalangi
Int'l. Ag. Extension
Dept. of Ag. Education
University of Arizona
Tucson, AZ 85721

Donald Kaufman
Cooperative Extension Service
201 Administration
Colorado State University
Fort Collins, CO 80523

Vernon Larson
Int'l Ag. Programs
108 Waters Hall
Kansas State University
Manhattan, KS 66506

Gary Lewis
AID
6848 New State
Washington, D.C. 20523

Lii Jung Liu
Director, Int'l. Programs
University of Puerto Rico
Mayaguy, PR 00708

Benny Lockett
P.O. Box 2594
Prairie View, TX

James Mathews
Director, CES
219 Eielson Building
University of Alaska
Fairbanks, AK 99701

Dalton McAfee
Asst. Administrator
P.O.: Box 21928
N.C. A & T State University
Greensboro, N.C. 27420

Arlene Mitchell
USDA - OICD
14th & Independence
Room 4102, Auditors Bldg.
Washington, D.C. 20250

Angela Neilan
Ext. Specialist, Evaluation
108 Hutchenson UPI
Virginia Tech.
Blacksburg, VA 24061

Jeanne Nolan
Home Ec. Ext.
162 Stanlcy Hall
University of Missouri
Columbia, MO 65211

Michael Nolan
Director, Int'l. Ag. Programs
2-69 Agricultural Building
University of Missouri
Columbia, MO 65211

Irene Ott
Leader, Home Economics
48 McNeal, 1985 Buford
University of Minnesota,
St. Paul, MN 55108

Edwin Oyer
Director, International Ag.
261 Roberts Hall
Cornell University
Ithaca, NY 14853

S.H. Phillips
Assoc. Director
S. 107 Ag. Sci. Center
University of Kentucky
Lexington, KY 40546

Frank Pinkerton
Extension Spec.
1 Connie Lane
Guthrie, OK 73044

Dick Prather
USDA - Ext. Serv.
Personnel & Mgt. Services
Rm 3545-S
Washington, D.C. 20250

Dean Pridgeon
756 Phillips Road
Montgomery, MI 49255

Tom Reed
Michigan Livestock Exchange
806 Coolidge Road
East Lansing, MI 48823

Felice Reed
Michigan Livestock Exchange
806 Coolidge Road
East Lansing, MI 48823

Richard Robbins
Ag. Econ.
North Carolina State
Ag. & Tech University
Greensboro, NC 27411

Richard Sauer
Director, Ag. Exp. Station
University of Minnesota
St. Paul, MN 55108

Eric Schertzing
c/o Robert Carr
2439 Rayburn Building
Washington, D.C. 20515

William Shimel
Director, CES
University of Vermont
Morrill Hall
Burlington, VT 05401

Norma Simpson
Home Ec. and Rural Dev.
Communications Consultant
c/o 1220 E. Walnut
Pocatello, Idaho 83201

David Smith
Assoc. Director, CES
102 E. Roberts
Cornell University
Ithaca, NY 14853

Oscar Strickland
Head, Program Development
104 Duncan Hill
Auburn University
Auburn, AL 36831

John Tasker
A622 E. Fee Hall
M.S.U.

Miriam Tirrell
Mich. Assoc. of Extension
Homemakers
615 W. Kalamo Hwy.
Charlotte, Michigan 48813

Gilbert Tompkins
Assoc. Adm. Ext.
Box 970
Langston University
Langston, OK 73050

George Von Tungeln
Asst. Dean, Int'l Pgms.
College of Ag. Sci.
Clemson University
Clemson, SC 29631

Lloyd Walker
Ext. Ag. Engineering
105A Glover
Colorado State University
Ft. Collins, CO 80523

B.C. Webb
Dean, School of Ag.
North Carolina State
Ag. & Tech University
Greensboro, NC 27411

Ray Weick
Regional Director, CES
University of Arizona
Tucson, AZ 85716

Morris Whittaker
Director, Int'l. Programs
UMC95
Utah State University
Logan, Utah 84322

Leodrey Williams
Ext. Administrator
P.O. Box 10010
Southern University
Baton Rouge, LA 70813

Marcus Winter
Ag. Dev. Office
AID/Washington
Dept. of State
Washington, D.C. 20523

Louis Wise
Vice President Ag. Forestry
P.O. Box 5386
Mississippi State University
Mississippi State, MS 39762

Randy Workman
Director, Community
Development Institute
University of Guam Station
Mangilao, Guam 96913

Joan Wright
Dev. Consultant
P.O. Box 104
Williamston, MI 48895

Carleen Yocum
Peace Corps. Rep.
#45 477 Michigan Ave.
Detroit, MI 48226

Andrea Ay
4-H Youth Agent
Cooperative Extension Service
210 Johnson Street
Hart, Michigan 49420

Bill Bivens
Ext. Ag. Agent
Cooperative Extension Service
412 Erie Street
Jackson, Michigan 49202

Richard Breyer
County Extension Director
Cooperative Extension Service
Box 157
Stephenson, Michigan 49887

Margaret Bucklin
Ext. Home Economist
Cooperative Extension Service
127 E. Maple Street
Mason, Michigan 48854

Marlene Caszatt
Program Leader, CES
605 N. Birch Street
County Government Center
Kalkaska, Michigan 49646

Sandy Clarkson
Regional Extension Supervisor
Cooperative Extension Service
48 Ag. Hall
M.S.U.

Charles Cooper
Ext. Hort. Agent
Cooperative Extension Service
412 Erie Street
Jackson, Michigan 49202

Sharon Fritz
4-H Youth Agent
Cooperative Extension Service
P.O. Box 586
Midland, Michigan 48640

Duane Girbach
County Extension Director
Cooperative Extension Service
314 E. Clinton Street
Howell, Michigan 48843

Elaine Glasser
Ext. Home Economist
Cooperative Extension Service
1200 N. Telegraph Road
Pontiac, Michigan 48053

Bill Harrison
County Extension Director
Cooperative Extension Service
836 Fuller Avenue, N.E.
Grand Rapids, Michigan 49503

Dyle Henning
County Extension Director
Cooperative Extension Service
1575 Suncrest Drive
Lapeer, Michigan 48446

Bernie Jardot
4-H Youth Agent
Cooperative Extension Service
617 State Road, Office C
Stanton, Michigan 48888

Patrick Livingston
4-H Youth Agent
Cooperative Extension Service
37 Austin
Sandusky, Michigan 48471

Mel Matchett
Regional Ext. Supervisor
Cooperative Extension Service
Courthouse, 720 Chisholm Street
Alpena, Michigan 49707

John McKinney
Ext. Sea Grant Agent, CES
Government Center
400 Boardman
Traverse City, Michigan 49684

Shelly McFee
Delivery Systems Coordinator
Cooperative Extension Service
412 Erie Street
Jackson, Michigan 49202

Julie Micheal
Ext. Home Economist
Cooperative Extension Service
441 Bay Street
Petoskey, Michigan 49770

Aliene Mills
Ext. Home Economist
Cooperative Extension Service
1575 Suncrest Drive
Lapeer, Michigan 48446

Wayne Nierman
County Extension Director
Cooperative Extension Service
1200 N. Telegraph Road
Pontiac, Michigan 48053

Geraldine Peoples
Ext. Home Economist
Cooperative Extension Service
Courthouse
Saginaw, Michigan 48602

Warren Schauer
Ext. Ag. Agent
P.O. Box 599
County Building Annex
Tawas City, Michigan 48763

Paul Thompson
Regional Supervisor
Cooperative Extension Service
48 Ag. Hall
M.S.U.

John Aylsworth
Program Leader, 4-H Youth
6H Berkey Hall
M.S.U.

Bob Barrett
Grad. Student
210 Horticulture
M.S.U.

Alemu Beeftu
Coordinator, NFE Center
237 Erickson Hall
M.S.U.

Rick Bernsten
Assoc. Prof. Ag. Econ.
216 Ag. Hall
M.S.U.

Ruth Brauteseth
Grad. Student
Human Nutrition
202 Wills House
M.S.U.

Frank Brewer
Dir. Ag. Mkt. Programs
11 Ag. Hall
M.S.U.

Barry Colley
Student
410 Ag. Hall
M.S.U.

Bruno Henry de Frahan
Graduate Student
Dept. of Ag. Econ.
29 Ag. Hall
M.S.U.

Eckhart Dersch
Ext. Specialist
323 Natural Resources Bldg.
M.S.U.

Everett Everson
Prof. Crop & Soil Science
303 Ag. Hall
M.S.U.

Russell Freed
Assoc. Prof.
Crop and Soil Science
303 Ag. Hall
M.S.U.

Charles Gibson
Prof. Vet Medicine
A150 Vet. Clinical Center
M.S.U.

Michael Cold
Asst. Prof.
Dept. of Forestry
129 Natural Resources
M.S.U.

Jerry Halm
Prog. Leader, Ext. Service
11 Ag. Hall
M.S.U.

John Judd
Acting Asst. Dir, NRPP
108 Ag. Hall
M.S.U.

William Kimball
Prof. & Ext. Spec.
323 Natural Resources
M.S.U.

Raymond Kunze
Acting Chair
Crop and Soil Science
5 Soil Science Bldg.
M.S.U.

Melba Lacey
Admin. Assistant
118 Ag. Hall
M.S.U.

Susan Morss
Graduate Assistant
Crop & Soil Science
321 Ag. Hall
M.S.U.

Linda Newman
Asst. Director,
Ext. Nutrition Prog.
202 Wills House
M.S.U.

Fred Peabody
Prof. Ag. & Ext. Ed.
410 Ag. Hall
M.S.U.

Consuelo Quiroz
Grad. Student
1570-I Spartan Village
M.S.U.

Doris Richardson
Prog. Leader, Home Ec.
103 Human Ecology
M.S.U.

Harold Riley
Prof. Ag. Economics
216 Ag. Hall
M.S.U.

Patricia Riley
Coord. Int'l. Visitor Prog.
118 Ag. Hall
M.S.U.

Roger Steele
Instructor
410 Ag. Hall
M.S.U.

Schillhorn VanVeen
Assoc. Prof.
Lrg. Animal Clinical Sci.
A12 Vet. Clinical Center
M.S.U.

Ardell Ward
Admin. Assistant
101 Ag. Hall
M.S.U.

Doris Wetters
Asst. Director
Family Living Ext.
108 Ag. Hall
M.S.U.

Robert Wilkinson
Assoc. Prof.
216 Ag. Engineering
M.S.U.