PN-ABD-320

Policy/Planning

Research/Extension

Education/Training

Natural Resource Management

AGRICULTURAL DEVELOPMENT

How MUCIA Operates

Chief executives of all member universities are actively engaged through the *Council of Presidents.*

Two top-ranking officials from each institution make up the *Board of Directors,* which is also aided by a campus liaison official (who may or may not be a board member) named by each institution.

The Board appoints the *Executive Director,* who directs the daily operations at the Ohio State headquarters. The Treasurer of the consortium is based at the University of Illinois.

Funding is provided by annual contributions from the member institutions and by grants and contracts for particular projects.

Operations are decentralized to the maximum through a small central staff (only nine full-time-equivalent professionals) and the choice of a "lead institution" to take leadership and responsibility for each large project.

Some Users of MUCIA Resources

World Bank
Ford Foundation
U.S. Agency for International Development
Asian Development Bank
Food and Agriculture Organization
UN Development Programme
U.S. Information Agency
Government of Malaysia
Ministry of Agriculture, Thailand
International Fertilizer Development Center
Addis Ababa University
University of Riyadh
Centro Venezolano de Poblacion y Familia
Joint Spanish-American Commission for Educational and Cultural Affairs

*Of the 10 largest universities in the U.S., five are MUCIA members; and among the universities with enrollments of more than 30,000, all MUCIA members are included.**

**Main campus figures, U.S. Department of Education*

Women in development, Indonesia

MUCIA's Readiness for Agricultural Development

MUCIA means Midwest Universities Consortium for International Activities, Inc. It could also mean Mobilizing University Capacities for International Agriculture. Such capacities for agricultural development are immeasurably strengthened by what is shared in the larger international mission of these eight Big Ten universities: Illinois, Indiana, Iowa, Michigan State, Minnesota, Ohio State, Purdue, and Wisconsin, six of which (excepting Indiana and Iowa) are federally aided land-grant universities of renowned agricultural specialization.

Agricultural development touches where most of the world live. Development efforts in the newly independent nations since World War II have taught us a hard lesson the hard way. That lesson is twofold: development will take longer than thought, and it must begin (or re-begin) with agriculture.

With almost three decades of experience itself, MUCIA continues to offer its advisory and project management services to any and all agencies, national and international, promoting agricultural development. MUCIA is "in it for the long haul." Its objective is to do what member universities, despite their comprehensiveness, can best do collectively. The common denominator of MUCIA projects, therefore, tends to be institution-building. Currently, that emphasis animates and cuts across four program priorities: policy planning, education/training, research/extension, and natural resource management.

What Does MUCIA Offer?

MUCIA universities have unmatched capability of mobilizing personnel for international missions. The source is a combined faculty of 23,000, among whom are one-sixth of all the agricultural scientists in the U.S.* This talent pool also represents an equal resource for education/training as needed by project participants from abroad. The teaching ambience for MUCIA's more than 300,000 students in main-campus degree programs is further enriched by the presence of 21,000 international students and a host of curricular opportunities shaped and strengthened by the extensive international experience of the faculty.

Beyond the widest spectrum of agricultural and agriculture-related degree programs at all levels, the MUCIA institutions also offer non-degree instruction, ranging from the group-targeted to the individualized, for all career stages and in many specialized fields. Nowhere is non-formal education done as extensively as in agriculture and nowhere in agriculture is it done as extensively as in MUCIA's association, whose international contracts have provided thousands of person-years training of host country personnel. Where appropriate, MUCIA has also taken its short courses and staff abroad for on-site instruction.

The personnel choice ranges from researchers in field and laboratory to policy advisors to governments, like the three University of Minnesota professors who

*U.S. Department of Agriculture, [illegible] *Professional Workers in State Agricultural Experiment Stations and Other Cooperating State Institutions.*

Most things, except agriculture, can wait
— Jawaharlal Nehru

have all served as Senior Staff Economists to the U.S. President's Council of Economic Advisors.

In addition, MUCIA has a tradition of forming partnerships with other universities where some special strength can be added, as in agroclimatic experience, involvement of minorities and women, and placement of participant trainees.

Resource management project, Dominican Republic

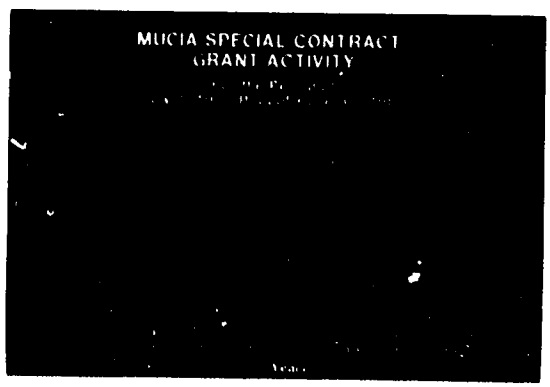
See today with the eyes of tomorrow— Alfred Mercier

Technical capacity in MUCIA also includes state-of-the-art research and extension facilities. This means centralized information access via computerization to millions of research materials in eight large research libraries with many specialized branches. It also means access to a research complex built up by seven states for more than a century, worth billions of dollars, with agricultural achievements as one of the recognized strengths. This includes the latest biotechnology resources and unexcelled computer and supercomputer services, with widely ranging specializations including agriculture, plus the world's largest computer-based instructional system. For extension and public service projects, MUCIA draws upon the historic developmental tradition of its eight public universities in response to the problems and needs of seven large states.

Can MUCIA Manage Projects, Large and Small?

MUCIA's record is the best exhibit. It is currently managing 15 projects with a recent total value of about $170,000,000. It presents the benefit of experience in already having completed more than 30, most of them long-term (some beyond 10 years), nine valued above a million dollars and one at $20,000,000. Mostly large-scale, they capitalized on MUCIA's *combined* university resources, wherein they found the professional expertise, training, technical assistance, and backstopping needed for each project. Smaller-scale projects have been undertaken in educational planning, the promotion of women in development, and numerous student/professor exchange programs, such as the one with Moscow State University.

MUCIA's intention is to share with collaborators and host countries the advantages and working relations represented within MUCIA itself as a consortium. That includes use of the central managerial office and staff, which has struck an important balance between coordinating the eight-member effort and decentralizing operations for each project through a single university designated as the lead institution, thus fixing clear accountability. Special attention has also been given the old cliché that professors who undertake projects are inclined to reluctant closure and slow delivery. In the light of experience, 15 structural and procedural changes were made several years ago to assure expeditious service in projects with quick turn-around time, as with short-term teams.



Beginning with the basics, China

If a man empties his purse into his head, no one can take it from him—Benjamin Franklin

What Experience Has MUCIA Had?

MUCIA's experience began in 1964 with a $3,500,000 founding grant from the Ford Foundation. Many technical assistance projects have since been completed around the world: seven in Indonesia; four in the Caribbean; three in Somalia; two each in Thailand, Korea, and Nepal; and one each in Burma, Ethiopia, Saudi Arabia, Syria, Colombia, Peru, Venezuela, Brazil, and Spain; plus an agricultural research strengthening project for all of Africa and a women-in-development project assisting USAID missions and counterpart organizations in selected countries worldwide. Agriculture has been either the focus or an important component in most of these.

Currently, MUCIA is conducting nine ongoing projects with funding by the World Bank, the U.S. Agency for International Development, the Government of Malaysia, and the U.S. Information Agency. Illustrative of other ongoing successful types is the Technical Support of Mission (TSM) project in the Eastern Caribbean, providing to that USAID mission "on call" assistance in agricultural research and extension. Of this project, the Chief of USAID's Rural Development Division said, "It is without a doubt the most successful and most used TSM that AID has anywhere in the world."

Crop research, Burkino Faso

A man's true wealth is the good he does in this world—Mohammed

The hole and the patch should be commensurate—Thomas Jefferson

Policy/Planning

The micro view of agricultural development has shown its limitations; hence the growing recognition of the "big picture" in which such development has to take place. That includes the degree of political stability, the freedom of markets, the tolerance of change, the role of governmental parties and bureaucracies, the balance between top-down and bottom-up planning, and much more.

Policy/planning can be conceived in many ways—at many levels and for many purposes. It is a far cry from the nitty-gritty of the extension worker to the law-making of the politicians or the national planning of the government economists, but they all set parameters for agriculture and chart courses for the future. Development without much if any regard for the political and economic context is, generally, no longer either funded or favored. Government is ever-present and its task is to make policy—what somebody by some process decides is good for everybody (or for a targeted group). As a result, mighty tensions are created—between urban and rural populations over price controls and income differentials and between the public and private sectors over fair shares in everything. Agriculture is often caught in the middle. Hence the common comment that making farm policy is harder than making foreign policy.

Planning, Ugandan Ministry of Agriculture

Program evaluation, Ghana

But somebody has to do it. And it has to be done, if done intelligently, with the best possible knowledge/information base and the best possible professional expertise. Universities surely can contribute significantly—those in the developing countries and those in MUCIA. The avenues are many—human resource training, technology/knowledge transfer, faculty exchanges, secondment for long or short terms, joint research, policy studies, and major technical assistance projects. The professoriate, wherever they are, if not taken directly into policy/planning bodies, can always be useful "on tap but not on top," to assist in building this capacity.

What Can MUCIA Offer?

1. the theoretical knowledge and practical know-how of the combined faculties of six of the nation's largest Colleges of Agriculture
2. the expertise for making policy studies, linking social science competency with the scientific specializations
3. extensive, hard experience in many multimillion dollar projects where policy/planning considerations are either specific and central or instructively present as helpful or harmful background
4. cadres of experienced personnel (chiefs of party in the field, project coordinators on campus, and top administrators) who have long dealt with policy making officials at home and abroad in both advisory and operational capacities
5. readiness to mount study teams or undertake significant policy/planning projects in cooperation with overseas clients, both public and private
6. eagerness to find research opportunities and learning experience for faculties already strongly interested in international agriculture.

Research/Extension

- MUCIA universities are research-based.
- They are development-oriented.
- They are problem-solving.

Therefore, they have a running start in any overseas agricultural development project. They are accustomed to doing agricultural research, development, and problem solving in their home states, which represent 34,000,000 people and $43 billion in farm income (30 percent of the U.S. total). Their turf is the heartland of America. Each of the MUCIA states has a land-grant university (six of them in MUCIA) founded under the famous act signed by President Abraham Lincoln in 1862.

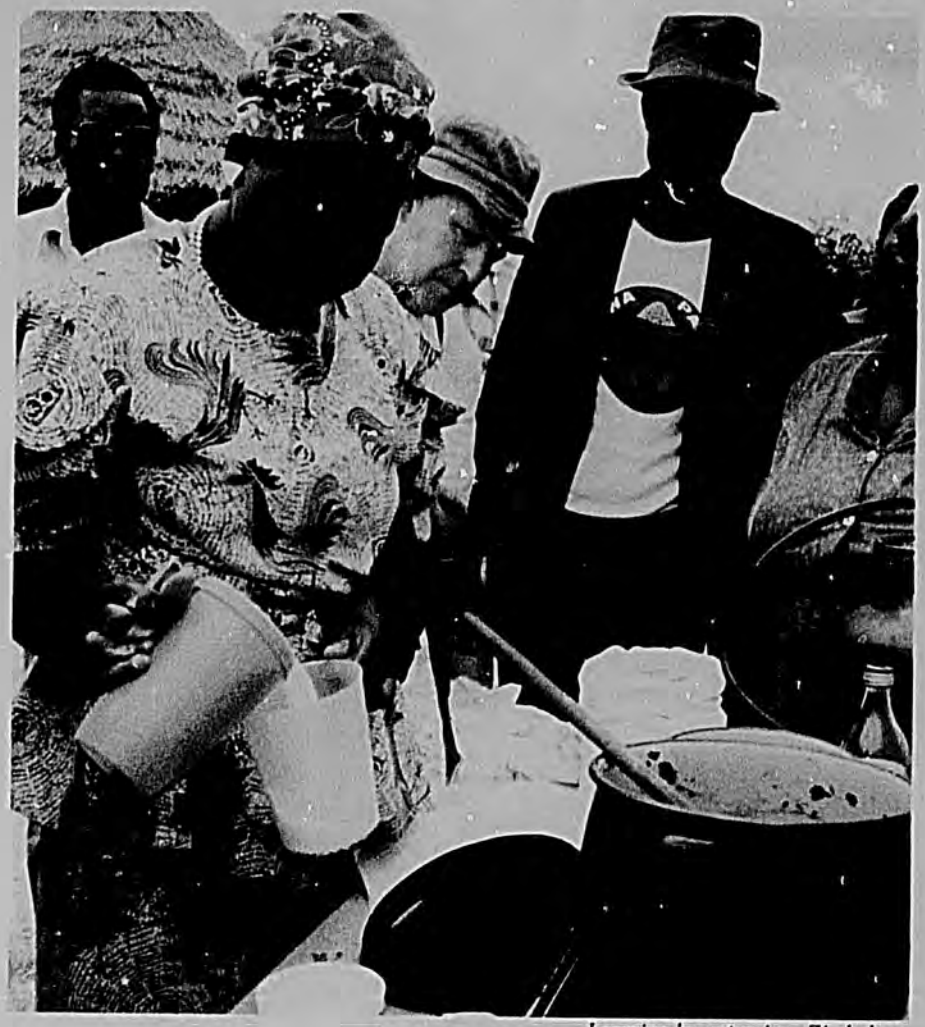
Under that act, the state universities, and not the central government, assumed responsibility for both agricultural research *and* extension—the earliest application of the now popular "systems approach." Since university-based, this unique American system makes the universities good sources of technical assistance abroad, not in any sense of exporting the unchanged American plan but in the sense of experience-derived adaptation to improve research/extension services to agriculture regardless of whether through government, university, or private sector.

All MUCIA Colleges of Agriculture have strong research departments and also a central Agricultural Experiment Station, with laboratories and farms, and a State Cooperative Extension Service, with agents covering every county. This century-old, seven-state experience has been put to use overseas in several MUCIA projects.

A good research example is the five-year, $65,000,000 World Bank-funded project to enhance the research capacities of Indonesia's universities through the development of research centers, strengthened graduate programs, participant training, and management consulting services.

A good extension example is the Caribbean Agricultural Extension Project. Most of the MUCIA institutions contributed personnel to this nine-year effort, funded by USAID at a cost of $12,000,000, to strengthen the agricultural extension services of seven Caribbean nations.

Perhaps nothing in the rapidly changing global agricultural scene, particularly in the nations trying to "catch up," is more important than the installation and management of research and extension systems so linked as to produce site-specific technological innovations with assured flow to the farm families on whom food security depends.



Learning by extension, Zimbabwe

Rice trial research, The Gambia

Far must thy researchers go
Wouldst thou begin
the world to know—
Confucius

Schooling begins, Kenya

Nowhere . . . is there an illiterate peasantry that is progressive; nowhere . . . a literate peasantry that is not— John K. Galbraith

Education/Training

Education is increasingly recognized as the real key to national and institutional development, and that means agricultural development in most countries. It is not only the mark of difference between the more and the less developed countries but the major cause of that difference. People with knowledge and skills are the real wealth of nations. There is no development except through people.

Through MUCIA, now in its third decade, educational opportunities among the world's best are given to all persons served by MUCIA's overseas technical assistance projects, both formal and non-formal, both in the classroom and in the field. What are the special education/training advantages through MUCIA?

Professionals graduate, Nigeria

- superior combined resources at both the graduate and undergraduate levels, with half the MUCIA graduate schools ranked among the top 10 in the U.S. on the basis of faculty publications *
- participation in programs that have recently conferred 15 percent of all the Ph.D. degrees in the U.S. in agricultural science, coming from many departments ranked among the best in the nation**
- expecially strong agricultural programs in the six universities of the land-grant type (Illinois, Michigan State, Minnesota, Ohio State, Purdue, and Wisconsin), each with a College of Agriculture and a host of agriculturally related academic units
- equally strong non-formal programs, short courses, workshops, and internships geared to both pre-service and in-service needs at all career levels of project participants, as shown by the thousands already served both from and in Asia, Africa, and Latin America
- use of unsurpassed research facilities, ranging from new biotechnology buildings to century-old, historically recognized agricultural experiment stations
- important special supporting programs and units related to "sustainable agriculture" and environmental protection/management
- special services to assist attending students in this otherwise overpowering array of opportunities: special officers to serve as advocates in placement and as monitors of progress, matching student talents and objectives with university placement, mostly in the MUCIA institutions themselves or as needed in other cooperating U.S. universities.

The overall result: educational participants in MUCIA's overseas projects get what they need for career use at home in building strong national institutions.

**The New York Times*, January 17, 1983
***National Science Foundation Survey*, 1985

Educational Opportunities in the Agricultural and Related Sciences*

Programs of Study**	University of Illinois			Michigan State University			University of Minnesota			Ohio State University			Purdue University			University of Wisconsin		
	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.	B.S.	M.S.	Ph.D.
Agriculture & Natural Resources																		
Agric. Business, Sales, Marketing	•	•	•	•	•	•	•			•	•	•	•	•	•	•		
Agric. Communications/Journalism	•			•	•		•	•	•	•	•	•	•			•	•	•
Agricultural Economics	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Agricultural Education	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Agricultural Engineering	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Agricultural & Extension Education	•	•		•	•	•	•	•	•	•	•	•		•		•	•	•
Agricultural Finance	•	•	•		•	•				•	•	•	•	•	•			
Agric. Mechanization & Systems	•			•	•	•				•	•	•	•	•	•	•		
Agricultural Meteorology													•	•	•			
Agronomy	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Animal Sciences	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Biostatistics		•			•	•	•	•	•			•					•	
Botany				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dairy Science	•	•	•	•	•	•				•	•	•				•	•	•
Ecology, Ethnology & Evolution	•	•	•					•	•		•	•	•					
Entomology	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•
Environmental Biology		•	•	•	•	•					•	•						
Environmental Education/Studies				•	•	•				•	•							
Environmental Engineering	•	•	•		•	•	•	•			•	•	•	•	•	•	•	•
Farm Management	•	•	•		•	•	•	•	•		•	•	•	•	•	•		
Fisheries & Wildlife				•	•	•	•	•	•	•	•	•	•	•	•			
Food Production, Mgmt. & Distribution	•			•	•	•	•						•					
Food Science, Food Technology	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Forest Biology	•	•		•	•	•				•	•	•		•	•			
Forest Industries Management	•	•								•	•		•	•	•			
Forest Resource Management	•	•		•	•	•	•	•	•	•	•		•	•	•			
Forestry	•	•		•	•	•	•	•	•	•	•		•	•	•	•	•	•
Forestry-Urban	•	•					•			•	•		•					
Genetics		•	•	•	•	•	•	•	•			•	•			•	•	•
Horticulture	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Integrated Pest Management		•	•	•	•	•	•				•	•	•	•			•	
Meat Science	•	•	•	•	•	•				•	•	•		•	•	•	•	•
Natural Resources Development	•	•	•	•	•	•				•	•							
Natural Resources-Interdisciplinary							•				•	•	•	•	•			
Parks & Recreation Resources/Admin.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Pest Control, Urban & Industrial		•	•										•	•	•			
Plant Breeding & Genetics		•	•		•	•	•	•	•					•	•		•	•
Plant Pathology/Plant Physiology		•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Plant Science/Plant Biology	•	•	•	•	•	•								•	•			
Poultry Science		•	•	•	•	•	•	•	•	•	•	•				•	•	•
Rural Sociology	•	•	•	•	•	•				•	•	•				•	•	•
Soil Sciences	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Veterinary Medicine			DVM			DVM			DVM			DVM			DVM			DVM
Clinical Sciences		•	•		•	•		•	•		•			•			•	•
Advanced Vet. Med. Studies		•	•		•	•		•	•		•	•		•	•			
Vocational-Technical Education	•	•	•				•	•	•	•	•	•	•	•	•		•	•
Water Resources Management		•	•	•	•	•				•	•	•	•	•	•		•	
Wildlife Ecology		•		•	•	•	•	•	•	•	•	•				•	•	•
Wildlife Management/Science		•			•	•	•	•	•	•	•	•	•	•	•			
Consumer and Family Sciences																		
Consumer Economics	•	•	•		•			•	•		•	•		•	•	•	•	
Consumer Science, Services				•	•					•						•	•	
Dietetics	•			•						•			•			•	•	•
Family Relations/Studies					•		•	•	•	•	•	•		•	•	•	•	•
Food and Nutrition	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Home Economics	•	•		•			•	•	•	•						•		
Home Economics Education	•	•		•	•		•	•		•	•	•	•			•	•	•
Housing											•	•						
Human/Child Development, Ecology	•	•	•	•	•					•	•	•	•	•	•	•	•	•
Human Resources & Family Studies	•	•	•		•					•						•	•	•
Nutrition Education								•	•		•	•						
Restaurant, Hotel, & Institutional Management	•			•	•					•	•	•	•	•				
Textiles & Clothing, Design	•	•		•	•		•			•	•	•		•	•	•	•	•

*Indiana University and the University of Iowa do not have colleges of agriculture. However, Indiana University offers B.S. programs in botany, environmental studies, nutritional science, parks & recreation administration, plant sciences, dietetics, human resources and family studies, textiles & clothing. Graduate studies are offered in environmental studies, ecology, ethnology & evolution, environmental biology, fisheries and wildlife, forest biology, water resources management, plant sciences, genetics, natural resources, parks & recreation admin., human resources & family studies, textiles & clothing. The University of Iowa offers B.S. programs in botany and home economics. Graduate studies are offered in biostatistics, botany, environmental sciences, environmental engineering, genetics, water resources, family sciences, family development, food & nutrition, home economics textiles and clothing.

**Exact titles vary among MUCIA universities.

Soil and water management, Indonesia

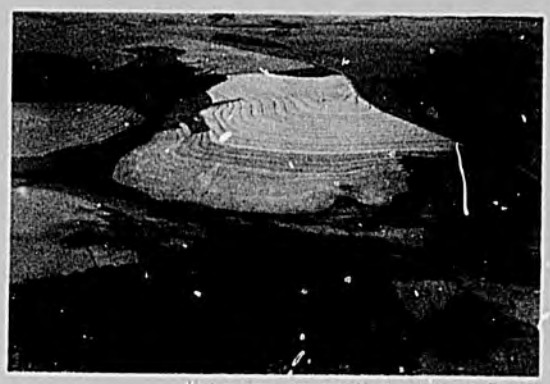
One generation passeth away and another generation cometh; but the earth abideth forever—
Ecclesiastes 1:4

Natural Resource Management

The world is beginning to suffer from "too much of a good thing"— from good knowledge and technology applied without sufficient regard for the not-so-good side effects. The passionate pursuit of economic growth as the be-all, end-all of national development has led to abandonment of restraint—to profligate *over*doing: *over*cutting of forests, *over*use of farm chemicals and fertilizer, *over*tilling of erodible soils, *over*centralizing farm ownership and management, *over*zealous development and application of labor-saving machinery, and *over*prescribing Western solutions for problems in the non-Western world, all compounding the parallel *over*populating of countries increasingly unable to feed themselves.

It has at last dawned on us that natural resources and human resources can and must be harnessed in tandem. The key is not exploitation but management. That means long-term use according to fully assessed need and fully realized cost. Men and women can be the conduit for knowledge and management to quell natural scourges, to ameliorate some natural tendencies, and to rechannel many of the forces of both nature and science into planned benefits rather than unanticipated social negatives.

Applied to agriculture, all this has bred a new buzzword, "sustainable agriculture," that has intense meaning regardless of its lifespan. This is much talked about and written about among international donor agencies, national ministries, and alarmed professionals of all kinds. The warnings are seen not only in the advanced economies, equally in the capitalist and command-managed, but also in developing countries once suspicious of any suggestions construed to be growth inhibiting.



Extension conservation practices, Brazil

MUCIA universities have a long record of development assistance in natural resource management. Examples are Michigan State and Ohio State together in the USAID-funded Natural Resource Management Project in the Dominican Republic, where Purdue is also engaged in the Wood Fuel Research and Development Program; and Minnesota in South Korea, Morocco, India, and Southwest Asia, with both FAO and USAID support. To provide better development services in the field, MUCIA is now coordinating these eight-member capacities in this major program thrust, using not only the agricultural departments and all other resource-related disciplines but also the several sharply focused programs and centers, like the Natural Resource Policy and Management Center at Minnesota and the Center for Sustainable Agricultural Systems at Wisconsin.

Sustainable agriculture means priorities, a complete-picture approach, allowance for unexpected social consequences, growth with equity, controlled technology, and concern *now* for those *after* us.

Interuniversity collaboration, Kenya

Soybean program, China

University of Illinois

The Urbana-Champaign campus of the University of Illinois has a record of more than 120 years of service to agricultural development, first for the people of Illinois (now approximately 12,000,000), then for world consumers of both food and new technology, and now for many developing countries which seek technical cooperation. This represents a progressive accumulation of resources, both human and physical, that can now be harnessed into agricultural development and resource management worldwide. Illustrative are these:

- A College of Agriculture as old as the University itself
- A talent pool of more than a thousand academic and professional staff, teaching 2,800 agricultural students, including 650 at advanced levels, in 13 departments
- State-of-the-art facilities, laboratories, experimental farms, and supporting services, including access to the nation's largest public university library and largest supercomputer complex
- A research base ranging from the experimental Morrow Plots, the nation's oldest in continuous use, to the new $30,000,000 biotechnology facility now under construction
- Annual research activities totaling more than $26,000,000 on campus and on 3,700 acres of University farmland, with several significant agricultural "firsts" and top-ranked faculty publications
- The world center for corn (maize) and soybean research

New Biotechnology Building

- An Extension Service with personnel extending knowledge and innovations to 3,500,000 rural and urban clients statewide annually
- University-wide resources related to agricultural people, crops, and animals, including a College of Veterinary medicine.
- 35 years of development cooperation and management of institution-building projects (averaging 10 years each) in India (universities in Madhya Pradesh and Uttar Pradesh), Sierra Leone (Njala University College), and currently Pakistan (North West Frontier Province Agricultural University) and Kenya (Egerton University), plus other programs targeted to research, extension, and training
- Specialized units like the Office of International Agriculture, INTSOY (International Soybean Program), and INTERPAKS (International Program for Agricultural Knowledge Systems)
- All the related resources on the sister campus, the University of Illinois at Chicago.

Indiana University in Malaysia

Indiana University

Indiana University has a long history of international activity both in individual schools and departments and through the seven specialized area studies programs covering, among others, the Middle East, Africa, Latin America, the Caribbean, Western Europe, and East Asia.

In terms of specialized inputs on the advisory and consultancy level, Indiana has become noted internationally in the following agriculture-related areas: a) management training and management organization for the agricultural and rural sector; b) financial and budget planning and management related to agriculture; c) natural resource management and economics; d) ecology and ecological management in a tropical and subtropical context; e) groundwater flow modeling and groundwater analysis; f) water chemistry; g) project planning, project appraisal, monitoring and evaluation; h) environmental legislation, and the relationship between administrative form and environmental management; i) anthropology and economics of developing societies, particularly in tropical rain forest and semi-arid physical environments; j) information management and management information systems as well as the application of microcomputers to managerial decision-making; k) public and environmental health and nutrition, as well as health administration; and l) development management and development administration.

Campus entrance

Although the University has neither an engineering nor an agriculture faculty, it has had experience in the areas of environmental, resource and public management for the more efficient and effective functioning of the private sector in the developing nations. From their experience, faculty in many branches of the University believe that there has been a tendency in the past to overemphasize the technological aspects of development, to the neglect of the managerial aspects of project design and operation. Furthermore, many of the key people in the public sector, where most agricultural project assistance is found, are limited by solely technical training as they move up to managerial positions. Indiana University has made a specialty out of the accelerated, and often on-site, training of such technical senior and mid-level staff in the area of effective management.

University of Iowa

Established in 1847, well before the Land Grant College Act, the University of Iowa is a comprehensive state university with agriculture-related strengths that allow it to contribute significantly to MUCIA's agriculture development projects. Given its general competency and faculty standing in the disciplines and professions (including colleges of business, law, medicine, nursing, dentistry, pharmacy, and engineering), plus strong area studies programs, the University is well prepared to carry out research and policy assignments worldwide and has a record of successful participation in major development projects in Africa, Asia and Latin America. The University of Iowa also has abundant experience in offering advanced training and technical/advisory services in specialized disciplines, including agricultural medicine; rural, occupational and environmental health; hydraulic research; and development communication studies. Strong support for MUCIA's program priorities, including resource management, is well illustrated in the specialized centers and institutes described below.

• Institute of Agricultural Medicine and Occupational Health. Founded in 1955, present staff 36. Services medical practitioners and their patients through surveys of rural health conditions and health hazard research. Possesses health promotion, accident prevention, industrial hygiene and occupational medicine capabilities.

• Health and Development in Agrarian Societies Group. Founded 1986, present staff 45. Fosters multidisciplinary training and research on the causes and consequences of communicable, chronic, environmental and occupational diseases in rural settings in developing nations. Assembles teams drawn from the social and health sciences to solve specific problems of health and development.

• Center for Health Services Research. Established in 1976, present staff 41. Focuses on the epidemiology of rural geriatric needs, on rural health care administration and on health care delivery to low-density farming populations.

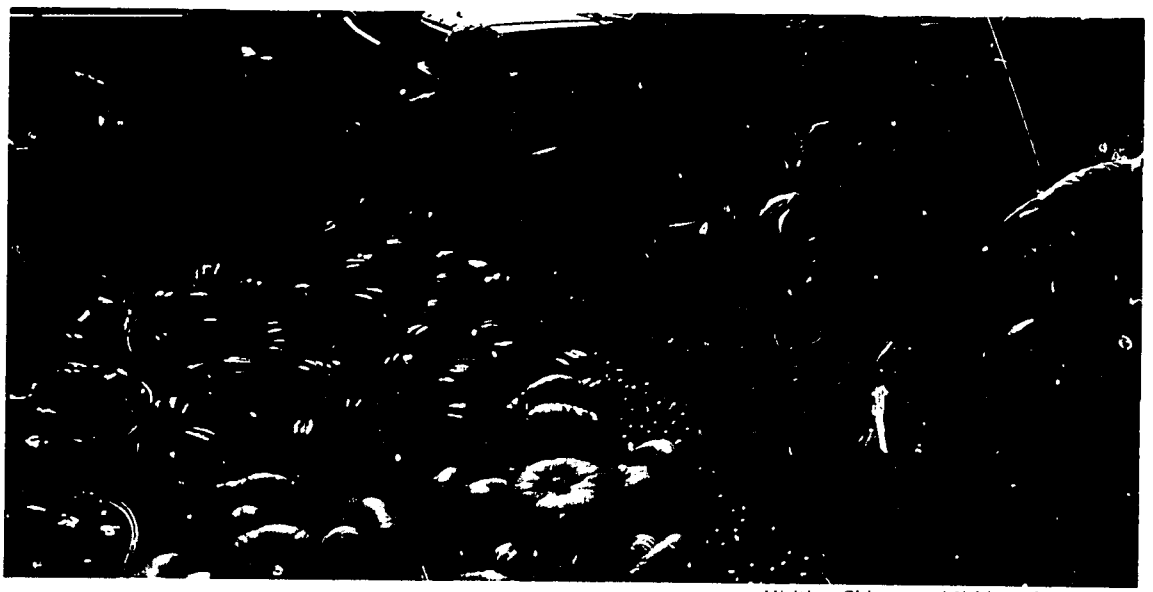
• Iowa Institute for Hydraulic Research. Founded in 1919, present staff 45. Conducts teaching and research programs on basic and applied hydraulics and fluid mechanics, including environmental engineering and water-resource systems.

Institute of Agricultural Medicine

Agricultural hygenist at work

• Development Support Communication Program. Founded in 1982, present staff of five. Interdisciplinary graduate training program prepares American and foreign students to analyze social, institutional and cultural constraints to communication in development projects abroad.

Less specialized, the Center for International and Comparative Studies coordinates eight programs of teaching and research in global studies, area studies, international development, international communications and women in development.



Visiting Chinese at Michigan farm market

Campus entrance sign

Michigan State University

To incorporate an international dimension into the teaching, research and outreach activities of the College of Agriculture and Natural Resources (CANR), the MSU Institute of International Agriculture was established in 1964 in response to the growing involvement of faculty and students in international programs since the first project in the 1950s. Major objectives are to develop international opportunities for students and faculty, manage overseas projects that are multidisciplinary in nature, and sustain linkages with collaborating institutions, like the U.S. Agency for International Development and the World Bank.

In over four decades, MSU has engaged in nearly 150 projects, with primary focus on Africa in recent years. CANR accounts for most of the development assistance work, supported by USAID and other donors, currently exceeding $30,000,000, with more than $5,000,000 in annual volume. The following are major efforts in which CANR has recently been or is currently involved:

- The Faculty of Agriculture Expansion Project (Zimbabwe)
- Food Security in Africa Project (Senegal, Rwanda, Malawi, Mali, and Somalia)
- Agricultural Research and Planning Project (Senegal)
- Agricultural Surveys and Policy Analysis Project (Rwanda)
- Employment and Enterprise Analysis Project (Rwanda)
- Bean/Cowpea Collaborative Research Support Program (Malawi, Mexico; management entity at MSU)
- Pond Dynamics Collaborative Research Support Program (Thailand)
- Tokyo University of Agriculture Exchange Agreement (Japan)
- Exchange Agreements with Five Agricultural Institutions (China)
- Kellogg Foundation International Fellowship Program in Food Systems (Worldwide).

Presently, over half of the approximately 350 CANR faculty members have significant international experience, with more than 15 "person years" spent on overseas assignments in a typical year. International students account for more than 40 percent of the CANR graduate enrollment.

Under the postwar leadership of President John Hannah (1941-1969), MSU was one of the first land-grant colleges to address the problems of agriculture and rural development, particularly through assistance in building indigenous institutions of higher learning and research in the developing nations.

In that tradition, MSU has many special facilities to contribute to MUCIA's four priority programs. Three (Education/Training, Research/Extension, and Policy/Planning) are served by the typical land-grant agricultural departments, with the cooperation of the Colleges of Education and Communication Arts. The fourth, resource management, can draw upon the disciplines of resource development, forestry, fisheries and wildlife, and park and recreation resources, with support also from the Colleges of Business and Natural Science.

University of Minnesota

While serving the largest main-campus enrollment in the U.S. (64,000) in the widest array of disciplines and professions, the University of Minnesota in Minneapolis/St. Paul still preserves its historic land-grant commitment to agricultural development. Its nationally recognized Institute of Agriculture, Forestry, and Home Economics, with separate colleges in each named field, provides campus-based instruction, the discovery of new knowledge and technology, and out-of-classroom service to individuals and groups, public and private. All this is closely linked with the state's strong agricultural economy, which the University has fostered and served for more than 130 years.

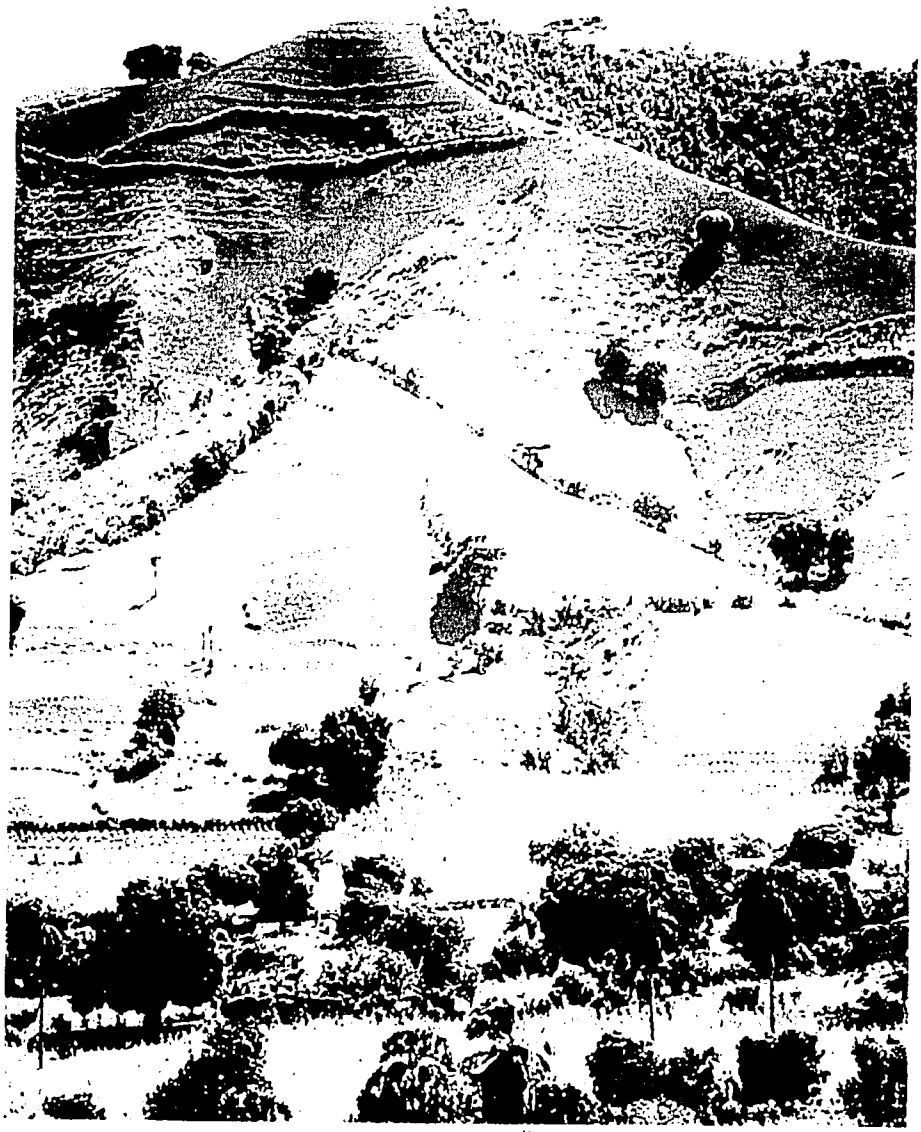
The University's involvement in and commitment to international programs is evident through its enduring cooperative links with institutions abroad and through its overseas collaboration with sponsoring agencies in developing countries. It has managed technical assistance contracts in Chile, Brazil, Tunisia, Morocco, Syria, Rwanda and the Eastern Caribbean. Faculty from the 18 colleges within the University system provide a broad spectrum of disciplinary skills to the international programs on campus and abroad. Ranked as one of the top 17 research institutions in the country, the University is traditionally strong in agricultural, environmental, technological and health-related fields.

Collaborative interdisciplinary education and research is a hallmark of the University of Minnesota. Throughout it, units such as the Center for Natural Resource Policy and Management, the Center for Alternative Crops and Products, the Center for International Food and Agricultural Policy, the Center for Agricultural Impacts on Water Quality, and the Hubert H. Humphrey Institute of Public Affairs bring together talented researchers from varied disciplines to conduct innovative research, provide a meeting ground and focus for issues, and foster communication among scientists and educators worldwide.

All these resources are supportive of MUCIA projects in general and have specific relevance to the four current program priorities for agricultural development.

Training a project participant

Leadership in MUCIA extension project, Caribbean



Resource management, Dominican Republic

Applying agricultural knowledge

Ohio State University

The Ohio State University was established in 1870 as an Agricultural and Mechanical College for the State of Ohio. Today, it is a comprehensive university offering degree programs in all major professional fields as well as in the sciences, humanities, and the fine arts.

The College of Agriculture encompasses 10 departments, the School of Natural Resources, the Agricultural Technical Institute, the Ohio Agricultural Research and Development Center, and the Ohio Cooperative Extension Service. It has considerable experience with the implementation of international agricultural projects. It has provided technical assistance to develop agricultural research, extension, and higher education capabilities in Latin America, the Caribbean, Asia and Africa. Beginning with the development and strengthening of agricultural colleges in India (in the states of Punjab, Haryana, Rajasthan, and Himachal Pradesh) and later in Brazil (University of Sao Paulo), this effort continues now with current projects in Uganda and Burma. The National Resource Management Project in the Dominican Republic expanded the College's international experience in comprehensive natural resource management. With over 200 international students from 50 different countries, the College also continues to train future agriculture leaders from around the globe.

A sampling of additional specialized resources that the College brings to agricultural development, resource management and international training follows:

- The International Programs in Agriculture Office, under the direction of an Associate Dean, administers international development and training projects.
- The Ohio Agricultural Research and Development Center includes more than 7,300 acres at Center headquarters, 10 branches across the state, Pomerene Forest Laboratory, and North Appalachian Experimental Watershed, with specialized units for maize virus, environment, pesticide application, and research extension analyses.
- Under the USAID Joint MOU PSG program, OSU collaborates with Fort Valley State College in Georgia in crop and livestock systems, soil erosion control, oilseed production, integrated pest management, animal health veterinary preventative medicine, and human nutrition.
- The Rural Financial Markets Program is recognized worldwide as a major resource in market analysis in low income countries.
- The Tropical Renewable Resources Program features a multidisciplinary faculty with combined experience in over 20 countries.

Purdue University

Purdue University, chartered in 1869, is the Indiana link in a nationwide chain of 68 land-grant colleges and universities. It has now become a world class institution of higher education, research, and public service.

Nearly 35,000 students are enrolled at the West Lafayette campus from every state in the nation and 2,000 from 100 foreign countries. An additional 15,000 attend regional campuses plus nearly 4,000 at the joint Indiana University/Purdue University campus in Indianapolis. Three thousand full-time faculty teach, conduct research and provide extension education on or from the main campus.

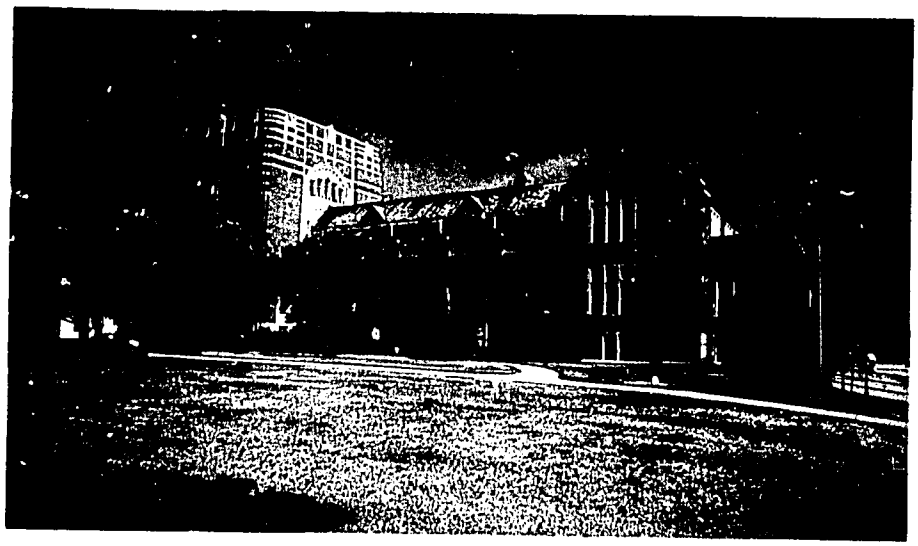
As a comprehensive university, Purdue ranks among the upper 15 American universities in Doctor of Philosophy degrees awarded, with strong educational, research, and public service programs in agriculture; engineering; the physical, biological, and social sciences; technology; the humanities; education; industrial management; consumer and family sciences; veterinary medicine; health services, nursing and pharmacy.

University research is funded by the state and federal governments and by external research grants and contracts from various federal agencies, private foundations, and industrial corporations. More than 400 research laboratories exist on the main campus. The Agricultural Experiment Station operates nine research farms at strategic locations in the state.

The Purdue University Computing Center provides services in support of instruction, research and public service activities of staff and students. Major computing systems include a Control Data Corporation (CDC) Cyber 205 supercomputer, two CDC 6000 series computers, and an IBM 3093 system.

Of the University's international programs, those of the School of Agriculture are the largest, most comprehensive, and continuous. All are administered through the Office of International Programs in Agriculture and the Office of International Education and Research, with each of the 10 major schools involved in technical assistance, research and/or educational activities in developing nations.

Purdue University offers students across all fields of study the opportunity to participate in 36 foreign study programs at 25 locations in 13 countries in Europe, Asia and Latin America. Faculty exchange agreements have been negotiated with leading institutions in Europe, Asia and Latin America. Purdue faculty participate in teaching, training, and collaborative research projects in all parts of the globe. The most recent collaborative effort links Purdue University with Zhejiang University located within Indiana's sister province in the People's Republic of China.



Student and Faculty Center

Thesis research, Niger

Some of the recent international projects in the areas of institution building and collaborative research projects are: Niger, National Cereal Research Project and National Applied Agricultural Research Project; Cameroon, Cowpea/Bean CRSP; Burkina Faso, Farming Systems Research Unit Project; Nigeria, Ahmadu Bello University; Egypt, Human Nutrition CRSP; Saudi Arabia, King Abdulaziz University; Brazil, EMBRAPA Graduate Training; Dominican Republic, Energy Conservation and Resource Development; Portugal, University Institutes Development Project; Indonesia (with MUCIA), Institutional Development, Indonesian System of Higher Education; Malaysia (with MUCIA), Institut Teknologi Mara; Morocco, planning, economics, and statistics for agriculture; and worldwide, sorghum/millet CRSP.

Village produce market, The Gambia

University of Wisconsin

The University of Wisconsin-Madison is one of the nation's leading research institutions, consistently ranking at the top in assessments of university programs in the biological and social sciences. In 1982 Wisconsin was ranked as the top land grant research institution in the U.S. For more than 30 years, the University's governing Board of Regents has included international programming in its description of the mission of the Madison campus. The College of Agricultural and Life Sciences, through its Office of International Programs, has been an active participant in international work for all of that time.

Wisconsin's international agricultural programs focus on institution-building, training, research, extension and policy.

At the *University of Ife in Nigeria*, from 1964 to 1975, Wisconsin helped develop a program of research aimed at the major problems of agricultural development in Western Nigeria, a curriculum in agricultural and basic sciences, and a faculty of agriculture.

At the *Federal University of Rio Grande do Sul in Brazil*, from 1964 to 1975, Wisconsin helped establish research and extension programs to assist state and federal agencies in improving agricultural production and marketing. Animal traction for land preparation and use of steeper slopes for improved pasture were encouraged as were conservation practices to reduce erosion produced by traditional farming systems. With the *Brazilian Agricultural Research Corporation (EMBRAPA)*, from 1972 to 1978, Wisconsin initiated and coordinated national research projects in rice and soybean production, provided training for Brazilian researchers, and assisted in the purchase of equipment to modernize research facilities.

In *Indonesia* Wisconsin, first with MUCIA and later independently, worked from 1957 to 1985 on programs of institutional development at the *University of Gadjah Mada* and the *Institut Pertanian Bogor*. At Bogor, the premier agricultural training institution in Indonesia, Wisconsin's assistance included curriculum development, training, administrative modernization, planning a new campus for 20,000 students, designing and equipping the library and the Environmental Resources Center, and strengthening the public service outreach programs. Because IPB is deeply involved in improving agricultural productivity for the country as a whole, Wisconsin also assisted in the testing of new technologies and seed for rice production, and in such conservation techniques as bench terracing and cover crops on steep hillsides.

In the West African country of *The Gambia* Wisconsin has been working since 1985 with the Ministry of Agriculture to develop a functioning program of *agricultural research and diversification* which will address that country's need to achieve higher levels of food self-sufficiency. The project includes extensive field trials of seed and crop varieties, work on the marketing of horticultural crops, and analyses of farm labor patterns.

Bascom Hall

In *Zambia* and *Tunisia*, Wisconsin has been working since 1987 with *Ministries of Agriculture* on issues of agricultural policy, including commodity pricing, input subsidization, encouragement of the small farm sector, etc.

The College of Agricultural and Life Sciences at Wisconsin includes a number of special programs which are deeply involved in international work, including the Land Tenure Center and the University Center for Cooperatives. International programming is fully integrated into the other work of the College and continues the traditional land grant emphasis on teaching, research, and extension.

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