

Opportunities for U.S. University Participation in Development Assistance

Changes in development assistance policy have affected every member of the development community. Significant constraints on funds allocated to U.S. development assistance activities, and the resulting cutbacks in U.S. Agency for International Development (AID) management staff, have led to a decrease in the number of AID-supported development projects. As the number of projects has decreased, individual projects have grown larger, demanding different types of management skills and participation. Simultaneously, increasing numbers of development assistance enterprises have emerged. Thus, while opportunities for involvement have diminished, the number of parties eager to participate have grown. These shifts have sparked increased competition for projects and for funds—for which U.S. universities, because of the Title XII program, were not prepared.

Opportunities may exist for increased university involvement in international activities promulgated by Federal agencies other than AID. AID's changes also may open opportunities for collaboration among U.S. universities and between universities and private voluntary organizations, private sector firms, agribusiness, and International Agricultural Research Centers. Land-grant universities have had some success in collaborating with other U.S. organizations; the potential exists for extending this experience to their international work.

COLLABORATION AMONG UNIVERSITIES AND OTHER DEVELOPMENT ORGANIZATIONS

Effective marshaling of resources has become a crucial issue given depletion of the foreign assistance budget. Members of the development community have long acknowledged that pooling and sharing resources may offer advantages to the U.S. development assistance program.

There is a pressing need to develop new national partnerships in international agriculture, ones that maximize the return to U.S. agriculture by coordinating the missions of our institutions. AID, USDA,

other Federal agencies, universities, private institutions and producers can all benefit through improved cooperation [25].

Analysis of the complementary strengths and weaknesses of the different development actors reveals that, in many instances, potential for successful collaboration does exist and may provide a route to a more economical and effective development assistance program.

Constraints posed by certain elements of the AID structure, by dearth of interest on the part of universities and other development actors, and by competition and animosity among various organizations, have hampered past efforts to carry out collaborative ventures. AID has attempted to boost the capabilities of individual actors, but has not addressed the possibility of building complementary capacities necessary for joint undertakings. In fact, AID's efforts to establish separate entities to address each sector—the Board for International Food and Agricultural Development (BIFAD) to represent universities, the Private Enterprise Bureau to work with the private sector, and the Office of Private and Voluntary Cooperation to assist private voluntary organizations (PVOs)—without promoting efforts to link them, may hinder collaboration.

U.S. universities have successfully pooled their resources and skills to address a variety of domestic concerns, but few collaborative activities have been extended to the international domain. While linkages between universities and other development actors must in many cases be developed from scratch, a number of extant mechanisms and programs might support cooperative efforts between universities. Programs may have to be modified to stimulate cooperative efforts. Competition for development assistance contracts may not ensure access to sufficient expertise.

Successful collaboration between U.S. universities and other development actors will depend on a number of different factors including: magnitude of interest demonstrated by organizations, degree to which participants perceive joint efforts to contribute to their self-interest, and quality of incentives

offered to participants. Initiating fruitful collaborative relationships will involve **two important steps**: 1) discerning when collaboration will prove beneficial and when it will prove ineffectual, and 2) developing mechanisms and incentives for organizational collaboration.

University-to-University Linkages

Some of the most successful university development work has been generated by university-to-university links. Collaborative Research Support Programs (see app. B), for example, commonly involve U.S. universities from different crop growing regions and with differing developing country experiences. This program operates on a wide range of agricultural production problems in most regions of the world.

Single universities often cannot provide the critical mass necessary for complex projects. Multi-institutional efforts in training and research can unite resources from a diversity of disciplines, experiences, and backgrounds. This type of collaboration is particularly valuable in an era when development assistance programs are leaning towards multidisciplinary approaches and solutions.

In addition to providing a broader spectrum of resources and, thus, improved university performance, joint university efforts can also generate political support for development assistance that single university undertakings sometimes undermine. Lack of understanding and visibility tend to limit the popularity of U.S. universities' international activities. Collaborative programs serve to reinforce each university commitment to participation and performance. Cost sharing for international activities among universities also may appease constituents who otherwise fault U.S. universities' involvement in overseas work for attenuating resources that should be **channeled to the universities'** domestic responsibilities.

U.S. universities also benefit from sharing risks. Financial and personal risks involved with university participation in overseas work have increased due to factors such as political instability in countries and regions, international terrorism, and larger project size that calls for increased fiscal investments.

Developing countries have reacted favorably to contracts with multiple-university entities. Joining

of university forces has often provided host countries with a large stock of resources and commonly permits more flexibility than contracts with single universities. Accessing the right mix of qualified staff at appropriate times has proved easier when host country governments have the reservoir of talent available under multiuniversity contracts.

Universities linked to consortia, and small institutions linked to larger ones, can benefit from pooling expertise and experience to win contracts. Internal reviews of collaborative projects also could lead to improved university performance. The Consortium for International Development (CID) has initiated a policy of reviewing all projects within the first year to identify and correct problems.

Collaborative efforts also may provide more effective predeparture orientations than single institutions tend to offer. Many universities have effectively administered training programs for a development project. AID has used the U.S. Department of Agriculture (USDA) to administer general training programs in agriculture and assigned a similar role to private firms in other areas. A broad collaborative effort could allow universities to participate in AID training in agriculture, natural resources, and environment. For example, a single training unit representing all five regional consortia could marshal a unique set of resources and link the educational systems of virtually every State.

Short training courses oriented to development assistance have been developed and offered without coordination except for the small number coordinated by USDA. CID has recently created a catalogue of short courses for its members. Analysis of that information indicates many opportunities to enhance performance and save money through greater collaboration, by merging courses, sharing resources, and reducing duplication.

Constraints on University Linkages

Constraints to multiuniversity development assistance activities vary according to the 'mechanism through which the universities are joined and the nature of the particular institutions involved. Certain problems, however, seem common to joint university work.

Diffusion of responsibilities and communication inherent in multiuniversity projects sometimes causes difficulty for donor agencies and participants. Donor agencies may have difficulty determining or

assigning responsibility within development projects where several universities are involved. Confused channels of communication also lead to miscommunications between university participants.

Complexities in contracting have plagued multi-university arrangements. Most university participation in development assistance occurs under some form of contract or agreement with the donor agency. For a single university program, these arrangements generally are straightforward. Existing procurement/contracting processes for work with multiple organizations generally are designed for activities in which private sector firms serve as lead institutions and other organizations serve as subcontractors. Such processes do not support co-equal collaborative efforts involving several universities working together.

Approaches Used in University-to-University Linkages

Universities in the past have formed various formal and informal linkage mechanisms to perform work together, including simple agreements, ad hoc membership in consortia, subcontracting activities to other universities, development of transitory or long-standing specific-purpose linkages, and formal consortia. Universities commonly base their joint work on simple agreements to work together on programs of common interest, such as Memoranda of Agreement or Understanding, which do not create an entity that can contractor implement programs on behalf of the partners.

Ad Hoc Membership in Consortia-Institutional agreements to facilitate access to individual staff members and to incorporate institutions into consortia on an ad hoc basis allow unique program resources to be shared. For instance, a number of institutions have benefited from Mississippi State University's seed technology program using this form of collaboration.

Subcontracting With Other Universities- Universities often enter into contracts to carry out a specific set of predefine activities related to an AID project, commonly in response to AID Requests for Proposals. While collaborative decisionmaking and management may occur, one partner tends to act as the prime contractor in legal/financial matters, subcontracting specific program elements to other institutions. In this way a combination of universities,

tailored to the needs of a particular project, can contribute to an AID program [12].

Specific Purpose Collaboration-Long-standing specific-purpose networks of universities also exist to address particular development concerns. CRSPs have proved particularly successful specific-purpose collaborative arrangements. Further, the Consortium for International Crop Protection and the Farming Systems Support Project involve a number of universities that provide staff and other services to AID through a lead institution. The majority of the specific-purpose linkages are transitory, functioning for a defined period and subsequently dissolving [17].

Consortia-Formal consortia have been used mostly for implementation of development projects (see app. D). Although each of six such consortia has developed an individual management style, organizational structure, underlying philosophy, and disciplinary expertise, they share some features [12]. Each, for example, has aboard of directors or similar mechanism by which university members direct the organization's activities as well as a central executive office and staff [17]. Most commonly, a consortium often assigns primary implementation responsibility to a single lead institution, while the other participating institutions contribute staff, training, and other inputs. In other cases, universities divide responsibilities among members by functions, such as training, or by subject matter or discipline.

Host governments identified university consortia as their preferred type of contractor in one analysis of alternative technical assistance delivery systems [12]. Host country government's would have difficulty replicating, let alone improving on, advantages offered by access to a number of high qualify U.S. universities.

Linking Large and Small Universities-The major motivation for developing linkages between small and large universities is to help the smaller institutions build their capacities to participate in development assistance projects. Through these linkages, AID and universities also hope to ensure access to all relevant resources. To date, partnerships have aimed at pairing universities based on shared interest in the same substantive field.

AID and universities have used a variety of methods to support linkages between large and small

institutions. CRSPs allow staff to be drawn from small as well as large universities. Many small universities also are members of consortia. Most historically black colleges and universities (HBCUs) are members of the Southeast Consortium for International Development [17]. Enactment of Title XII created a program whereby land-grant universities and HBCUs participate in Joint Memoranda of Understanding (JMOU); AID allocates funding to each partner to facilitate and enhance the involvement of each institution in future AID programs. Larger institutions sometimes engage HBCU partners to secure and implement a specific project—a practice that AID encourages. The Joint Memorandum of Understanding project was terminated in 1991, although a mechanism to continue support for HBCUs may be developed.

Several difficulties hinder linking small universities with larger ones. Large universities may lack an incentive to form binding relationships with smaller schools that may not already house desired resources or expertise, and may not vigorously pursue overseas opportunities with these institutions [51]. Larger institutions also may dominate smaller ones in collaborations, hindering HBCU faculty ability to influence decisions. Critics of the HBCU program believe the arrangement focuses too much on benefiting the HBCUs and does not necessarily take into account what is in the best interest of the larger universities, AID, and the developing country recipients. However, a review of the JMOU program found that the partnership approach has been beneficial to both groups of organizations and to AID [51].

University and International Agricultural Research Center Linkages

Much of the increase in agricultural production worldwide over the past two decades drew on the research and innovations of international collaborative networks, especially the International Agricultural Research Centers (IARCs). For example, much of the progress that has occurred in developing world agriculture—including some of the most famous breakthroughs, known collectively as the “green revolution”—can be largely attributed to the contributions of IARCs.

Since inception of the IARCs, U.S. universities have participated in their work. However, the basic philosophy for university involvement in IARCs has changed in recent years. Initial altruistic motivations

have shifted to an emphasis on the potential for mutual benefits resulting from knowledge discovered at the IARCs. Growing emphasis on “reverse technology transfer” and a two-way flow of information in international agricultural research has revealed many areas of mutual interest and opened up possibilities for sharing techniques and resources between the United States and lesser developed countries (LDCs). This change in U.S. philosophy has broadened the rationale and expanded the possibilities for U.S. university/IARC linkages [cf: 25].

The United States has a vested interest in many of the major crops studied by the IARCs (table 4-1). Wheat, maize, sorghum, beans, cowpeas, rice, and barley serve as staples to U.S. and LDC agriculture. U.S. and LDC scientists seeking answers to problems on the same crop or facing similar agroecological conditions have a strong basis for conducting cooperative research activities: agronomic techniques developed for one area of the world can often be applied to another. Texas has a black soil region, for example, similar to regions in Africa and Asia. IARCs present a forum in which mutually beneficial joint activities can take place.

IARCs also serve as repositories for germplasm, the genetic resources that serve as the building blocks for many cultivars. Scientists from the United States and across the world draw on these genetic resources and constantly look for new sources of variation to integrate into ongoing programs. Through IARCs, U.S. universities have shared useful knowledge about genetic resources with other organizations and benefited from new information from these organizations.

U.S. university participation in the IARCs also helps promote global flow of knowledge attained through scientific research. IARCs foster international exchange of information and knowledge among a worldwide network of scientists. In addition to research requiring direct collaboration among international colleagues, IARCs sponsor conferences and workshops that also foster the flow of knowledge. Thus, a U.S. scientist working at a center has multiple opportunities to interact with counterparts from all areas of the world.

The relationship between U.S. universities and IARCs has a synergistic and self-perpetuating quality. Increased university collaboration with IARCs contributes to the internationalization of U.S. uni-

Table 4-1—Primary Foci of International Agricultural Research Centers^a

Acronym	Center	Location
<i>Specific commodities:</i>		
AVRDC	Asian Vegetable Research and Development Center	Taiwan
CIAT	International Center for Tropical Agriculture	Colombia
CIMMYT	International Maize and Wheat Improvement Center	Mexico
CIP	International Potato Center	Peru
ILCA	International Livestock Center for Africa	Ethiopia
ILRAD	International Laboratory for Research on Animal Diseases	Kenya
INIBAP	International Network for the Improvement of Banana and Plantain	France
IRRI	International Rice Research Institute	Philippines
ITC	International Trypanotolerance Center	Gambia
WARDA	West Africa Rice Development Association	Liberia
<i>Geographical areas:</i>		
CARDI	Caribbean Agricultural Research and Development Institute	Trinidad
CATIE	Center for Tropical Agricultural Research and Training	Costa Rica
ICARDA	International Center for Agricultural Research in the Dry Areas	Syria, Lebanon
ICRISAT	International Crops Research Institute for the Semiarid Tropics	India
IITA	International Institute of Tropical Agriculture	Nigeria
<i>Agricultural inputs:</i>		
IBPGR	International Board for Plant Genetic Resources	Italy
ICIPE	International Centre for Insect Physiology and Ecology	Kenya
IFDC	International Fertilizer Development Center	United States
<i>Natural Resource System^b</i>		
IBSRAM	International Board for Soil Research and Management	Thailand
ICI-ARM	International Center for Living Aquatic Resources Management	Philippines
ICRAF	International Council for Research in Agroforestry	Kenya
IIMI	International Irrigation Management Institute	Sri Lanka
<i>Food and Agricultural Policy</i>		
CABI	Commonwealth Agricultural Board International	United Kingdom
IFPRI	International Food Policy Research Institute	United States
ISNAR	International Service for National Agricultural Research	Netherlands

^aSome IARCS are sponsored by the Consultative Group on International Agricultural Research.

^bTwo new international tropical forest research centers, based in Costa Rica and Indonesia, have been proposed.

SOURCE: Developed, in part, from information presented in Consultative Group on International Agricultural Research, The Secretariat, "Sustainability Research in the CGIAR—Its Status and Future," Agenda Item No. 9 of Consultative Group Meeting held May 29-June 2, 1989, Canberra, Australia (Washington, DC: CGIAR, 1989).

versities. This will, in turn, spur future involvement of university staff members in IARC activities.

U.S. universities already play a major role in training IARC researchers. A 1984 survey of staff at several Centers revealed that 48 percent of their researchers received their most recent degrees from U.S. universities; 90 percent of those degrees were awarded by U.S. land-grant institutions [9]. IARCS

also provide foreign students pursuing graduate degrees at U.S. universities with a forum to conduct research relevant to their LDC field of interest—opportunities that may not exist at the U.S. university. Participating in the training of these LDC students also contributes to development of the future capacity of host country national agricultural research institutions where many students later work. Thus, linkages between U.S. universities and

IARCs offer benefits to the individuals involved today, and strengthen the future of international agricultural research.

Constraints to University/IARC Collaboration

IARC and university staff have identified few constraints to the formation of additional university/IARC linkages. Some IARC personnel view research as their central objective and believe that training programs waste IARC researchers' time and resources; one solution might be to link the theses of graduate students being trained at IARCs to particular IARC projects, thereby making their training beneficial to the research objectives of the centers.

A more critical constraint seems to be lack of financial support for U.S. scientists to participate in IARC programs. By one estimate, for every dollar contributed to IARC budgets, certain European governments allocate 3 dollars to link their scientists to the Centers; the United States devotes 3 cents for each dollar contributed [25]. A program specifically designed to encourage and support participation of U.S. scientists in IARC collaboration may be required.

Approaches Used in University/IARC Linkages

Extensive collaborative links exist between the international centers and U.S. researchers, the majority of whom work at U.S. universities [9]. U.S. university staff work collaboratively with IARCs in each category of activity in which IARCs carry out collaborative work:

- *Research contracts commonly formalized and funded by an external donor (frequently AID), allows universities to assist IARCs by contributing expertise in a particular area or towards a specific task.*
- *Noncontract research collaboration includes a wide variety of activities, from the exchange of germplasm for reciprocal screening to conduct of formal, joint studies through visits or long-distance communication.*
- *Research cooperation facilitates continuing correspondence and interaction to plan research programs. Cooperation may develop into more formal activities.*
- *Personnel exchanges include sabbatical leaves in both directions and shorter forms of exchanges.*
- *Training activities fall into two general categories: 1) training courses for researchers and*

technicians from developing countries conducted at U.S. universities, and 2) degree-related student research projects, involving U.S. and LDC students, jointly administered by IARCs and universities.

- *Information exchange includes joint publication and sharing of research databases or other documentation programs.*
- *Other informal collaboration includes a wide variety of activities, generally short-term, such as professional meetings, workshops, and planning or review panels.*

AID has three programs specifically designed to encourage and support linkages between U.S. institutions and IARCs: Collaborative Research on Special Constraints, Scientific Liaison Officers Program, and CRSP/IARC Linkages. In addition to continued support for these programs, two relatively inexpensive opportunities exist to increase collaboration between IARCs and U.S. researchers.

*Collaborative Research on Special Constraints—*This relatively new program is intended to solve short-term problems that may be blocking technological breakthroughs at the centers by allocating 2- to 3-year grants of approximately \$50,000 a year for collaborative research between scientists at U.S. institutions and at IARCs. This approach already has proved cost-effective [53], and might beneficially be expanded.

Scientific Liaison Officers Program—AID identifies individual U.S. researchers to serve as Scientific Liaison Officers to IARCs to improve linkages to the U.S. scientific community and to strengthen technical exchange between the centers and AID. The liaison officers help IARC researchers contact U.S. scientists conducting relevant research and assist U.S. researchers in establishing contact with center staff. Liaison officers are selected on the basis of professional excellence and interest in the research of the center for which they have been chosen; they make annual visits to the centers they represent, and serve as resource persons to AID personnel.

CRSP/IARC Linkages—AID encourages research linkages between CRSPs and relevant IARCs. In some cases, IARCs and CRSPs form linkages based on existing areas of common interest, in others, AID has prompted CRSPs to seek center researchers to participate in joint planning conferences and serve on evaluation panels.

Post-doctoral Fellowships—AID could support post-doctoral fellowships for U.S. researchers at IARCs with relatively little additional funding. Many post-doctoral fellows move into senior researcher positions either at the same center or elsewhere in the system. For example, nearly 70 percent of the Rockefeller Foundation Social Science fellows remain in the Consultative Group on International Agricultural Research system. At approximately \$33,000 per post-doctoral year, \$1 million would provide opportunities for 30 scientists to come to the Centers.

Small-Scale Collaborative Linkages—Despite shared interests, lack of funding commonly constrains the number of collaborative activities occurring between personnel at the international centers and their U.S. colleagues. Small amounts of money, perhaps \$5,000 to \$20,000 a year, can support a graduate student working on a project of mutual interest, provide resources for a series of germplasm screening tests, or allow joint trials that require travel funds. For a cost of \$1 million, 50 to 200 activities could thus be supported. If treated as an augmentation to the core IARC contribution, these would require little managerial overhead.

University/Private Sector Linkages

Private sector participation in international development assistance is one of AID's four main objectives. This created interest in promoting linkages between U.S. universities and private sector organizations. The term "private sector" remains ambiguous, however, and has been defined to encompass a wide range of establishments. Different private sector entities play differing roles in the U.S. economy, have varied motivations for participating in the U.S. foreign assistance program, and develop distinct types of relationships with U.S. universities. For the purposes of this report, private sector has been defined to include three groups: private voluntary organizations, private consulting firms, and agribusiness firms. In order to address the distinct issues involved in their linkages with U.S. universities, each of the groups will be treated separately.

University/Private Voluntary Organization Linkages

Private voluntary organizations (PVOs) have broadened their capabilities in recent years, simultaneously competing with and offering U.S. universities new opportunities. Due to a shift in philosophy

as well as congressional mandates to include PVOs in the development process, PVOs have shifted their major emphasis from disaster relief and food aid to development assistance [113]. PVOs now play a substantial role in development assistance work, administering at least \$1.2 billion in annual aid to developing nations, some of which is supported by AID.

A number of factors have contributed to AID's increasing reliance on PVOs. Despite heterogeneity in the PVO community, many have emerged as sophisticated, well-organized development assistance actors. They are employing growing numbers of professional staff and forming long-term, strategic outlooks. PVOs have also expanded the range of LDC nongovernmental organizations with whom they interact [104]. Thus, PVOs have developed into a strong constituency for foreign assistance. As a result, despite apparent complementarities of university and PVO functions and the potential benefits of forming collaborative university/PVO relationships, competition for congressional funding generally characterizes the university/PVO relationship. Financial or programmatic incentives to members of both communities are probably necessary if successful university/PVO collaboration is to evolve.

Moreover, PVOs and universities tend to reach out to different echelons of LDC societies. PVOs tend to focus on "bottom-up" or grassroots strategies, emphasizing developing capacities for action at the local level to solve local problems. Universities, on the other hand, tend to work from the top down, focusing most of their work at ministerial or institutional levels. Because PVOs commonly engage in short-term projects disconnected from mainstream institutional development, many of their innovations are not applied to other problems or replicated by other organizations.

However, PVOs are increasingly called on to plan, administer, and carry out large-scale development projects; universities are simultaneously searching for new ways to participate in AID's development efforts. Thus, both communities are carrying out extensive policy and program evaluations. These simultaneous searches for new development assistance approaches may provide an opportunity for PVOs and universities to consider more joint endeavors.

Members of both communities have recognized the potential benefits of carrying out cooperative

activities and have expressed interest in pursuing that potential. A 1984 AID-commissioned survey of 180 PVOs and 120 universities revealed that both groups value their previous collaborative efforts, which mainly entailed PVOs hiring university consultants to carry out specific tasks [44]. The survey also indicated that the two communities shared priorities in a number of areas, including: agriculture, rural development, livestock development, health, and water and sanitation.

Recent cutbacks in Federal development assistance have affected both communities. An alliance between the two groups could strengthen their ability to influence Congress and increase public support for development work.

While university and PVO approaches represent different development assistance philosophies, they could prove to serve highly complementary functions. Through combined efforts, universities and PVOs could extend their assistance to an even broader spectrum of LDC populations. Although universities have made some major technological breakthroughs, they have been repeatedly criticized for failing to disseminate new knowledge and information to local populations. PVOs might provide an effective vehicle for transporting useful knowledge from the generating institutions—including universities—to the people who can implement it. University/PVO collaboration could lead to adoption of successful PVO methods by universities in their long-term development activities. Concomitantly, PVOs could benefit from university expertise in development of training skills.

Staffing problems have afflicted universities working in development in the past. Many projects require long-term staff participation, while university personnel generally are unable to commit to such activities for extended periods of time. PVOs could enlist university personnel for short-term assignments on their projects. This type of arrangement would benefit PVOs by providing them with the specific expertise they need, and would benefit universities by broadening the universities' international experience without depriving the university community of valued personnel for extended periods of time. Such assignments also would fit well into the academic calendar, which restricts the availability of faculty members for overseas assignments.

Constraints to U.S. University/PVO Linkages— Despite potential successful university/PVO collab-

oration, a number of constraints stand in the way of such linkages. Basic philosophical differences exist between PVOs and universities. The typically conservative nature of universities tends to conflict with the generally untraditional nature of PVOs. While PVOs tend to be proactive and action-oriented, universities are more often reactive and response-oriented. These philosophical differences have led to the development of friction between the PVO and university communities. Universities often question the effectiveness of PVO efforts, because they view the size of and scope of PVO efforts as inadequate and unlikely to result in lasting change [11]. On the other hand, PVOs have questioned the relevance of university staff knowledge and expertise to developing country conditions and have criticized university projects for failing to address the needs of the "poorest of the poor."

AID has done little beyond organizing several pilot projects to stimulate PVO/university cooperation. Structurally, the agency treats the university and PVO communities as separate development actors operating in unrelated spheres. AID sponsors advisory groups to each community—Advisory Council for Voluntary Foreign Assistance (ACVFA) for the PVOs and BIFAD for the universities—that operate independently with little interaction. While AID has provided guidance to help PVO groups strengthen their capabilities, and Title XII provided strengthening grants and other mechanisms to improve university performance, the agency has not organized efforts to promote a collaborative relationship between the two groups. Specifically, no funding mechanisms exist to support university/PVO activities, and the two groups have not managed to communicate the benefits of past collaboration successfully to AID. Because successful university/PVO linkages will depend on AID's support, little progress will be made in this area until AID recognizes the value of this type of cooperation.

Approaches Used in U.S. University/PVO Linkages—U.S. universities and PVOs have had little experience working together in international development activities. The Center for PVO/University Collaboration in Development was established by Western Carolina University in 1979 to encourage and institutionalize collaboration between PVOs and Appalachian universities to address rural poverty. The participants perceived a number of commonalities between the problems of rural poverty in the United States and in developing nations, and saw

the value of applying solutions developed in response to problems in one region elsewhere.

Based on meetings focused on involving PVOs concerned with the environment and natural resources in collaborative efforts with the universities and AID, BIFAD established a Standing Committee on Sustainable Agriculture in 1989. Composed of representatives from all three groups, the committee currently is developing a National Agenda for Promoting Sustainable Agriculture in Developing Countries. In addition, AID is supporting a number of university/PVO pilot projects to explore the effectiveness of this type of broad cooperation.

Because so few examples of university/PVO collaboration exist, initial efforts to improve university/PVO collaboration could involve an AID-organized meeting between the agency and representatives of the PVO and university communities. Substantive discussions might assist AID in determining the types of activities best suited for collaboration and the types of incentives needed to foster that collaboration. Collaboration will likely work best in cases where universities, PVOs, AID, and LDC organizations work as partners from project design and planning throughout project implementation.

CRSPs may also provide a forum for university/PVO collaboration. While CRSPs have been cited as effective examples of AID-supported university programs, they have been criticized for lacking extension elements. PVOs—recognized for their success in extension activities—could contribute these strengths to the CRSPs, ensuring the broad dissemination of CRSP-obtained research and technology.

AID could establish a clearinghouse to facilitate communication among AID, universities, and PVOs [cf: 110]. A successful clearinghouse would provide PVOs with technological support and universities with useful evaluations of PVO experiences in implementing university-generated technology.

The greatest opportunity for forming university/PVO linkages maybe in training. Poor or inadequate training programs often hinder the performance of PVO personnel working in developing nations. U.S. universities could be enlisted to train PVO staff and indigenous nongovernmental organization staff, thereby distributing the benefits of a widely recognized university strength. Concomitantly, PVOs

could train university personnel in development of grassroots collaboration.

Universities and PVOs also could explore the possibilities of creating links between LDC alumni of U.S. universities and PVOs within those LDCs. These alumni, knowledgeable about the host country and likely to be familiar with the philosophies backing the western organizations, could provide a valuable resource for PVOs.

University/Private Consulting Firm Linkages

Significant collaboration currently occurs between U.S. universities and private consulting firms working on AID-supported international development projects. Of 141 Title XII projects identified by BIFAD in 1988, private firms participated in some capacity in 23 percent of the contracts, leading 11 percent of the activities and serving as subcontractors in the remaining 12 percent [79].

Private consulting firms present universities with their most rigorous competition for development assistance projects, reflecting the overlapping functions of private firms and universities working in this field. Tightening of AID's budget, the change in its project portfolio, AID's increased emphasis on short-term results, and growing emphasis on private sector development in the past decade have all led to an increased reliance on private sector firms in AID's international work. private firms now often replace universities as contractors. These factors have contributed to antagonism between universities and private fins.

Increasing the number of university/private firm linkages could provide an avenue for reinvolving universities in development assistance work while maintaining the current focus of the development assistance program. As the funds available for development assistance work diminish and competition over the available funds increases, the expansion of university/private consulting firm linkages could also present a cost-effective method for accessing the best resources of these two development actors.

Universities and private consulting firms have complementary resources and strengths and, through joint undertakings, might be able to compensate for each other's weaknesses. While universities' low staff turnover rates tend to bring an element of long-term stability to their work with AID, universities sometimes lack the staff with the

expertise necessary to carry out specific tasks or to work on individual projects. Regular full-time university staff fill about 62 percent of long- and short-term overseas technical assistance positions in Title XII projects [80]. Private firms which tend to hire particular staff members to work on specific projects, could help fill personnel gaps in these projects.

Private firms have shown strengths in certain areas of development assistance work including: private sector development, technical assistance to business activities, and short-term technical assistance. Because private firms engaged in development assistance activities are highly dependent on AID for survival, they have also learned cost-effective, efficient management methods. Collaboration between universities and private firms could help universities conduct their development assistance in the results-oriented manner that AID prefers.

Constraints to U.S. University/Private Consulting Firm Linkages—The current competition and antagonism between U.S. universities and private consulting firms serves as the strongest deterrent to forming increased linkages between the two. With the implementation of Title XII set-asides, bad feelings developed between universities and private firms. Firms have argued that the set-asides create an “uneven playing field,” ensuring universities with easy access to AID contracts. Similarly, because firms often hire ex-AID employees, universities view private firms as having an inside track for winning bids.

Areas of competitive overlap—such as extension activities and economic policy analysis—exacerbate this rivalry. Because a number of firms have expanded their portfolios in response to the decline in funding and limited opportunities, universities and private firms find themselves competing over more and more projects.

Universities and private consulting firms do work together when they view collaboration as mutually beneficial. University/private firm linkages will likely continue to form in these cases, particularly given the increased complexity and size of AID projects. While expanded university/private firm linkages would likely offer AID and developing countries access to improved resources, a formal collaboration program does not seem to offer many benefits to either universities or private firm and

thus may not facilitate university/private firm linkages.

Approaches Used in U.S. University/Private Consulting Firm Linkages—The most common mechanism employed in forming university/private firm linkages, the contract-subcontract relationship, specifies the demands expected from and the benefits anticipated by each party involved. Because of their honed management skills, experience in project implementation, and cost-effective methods for winning proposals, private firms tend to be effective lead contractors. They apply these skills particularly effectively when carrying out short-term projects. Universities are perceived as more effective prime contractors on long-term projects that comply with their traditional strengths, such as institution-building activities.

Universities and private firms currently share certain personnel through various informal mechanisms. Because university and private firm staff members are often recruited from the same places, lines sometimes blur between the two entities. University staff often play short-term advisory roles at firms, and private firms often hire university specialists, particularly economists, to work on their development projects.

Increasing exchange of personnel between universities and private consulting firms may facilitate collaboration between the two groups. Homestays at private firms by university personnel, and vice versa, could provide means to educate staff from one entity on the techniques employed by the other. Staff sharing, however, previously has led to some discomfort on the part of universities. Private firms usually can offer the financial incentives necessary to enlist the assistance of the specific university staff members needed to meet the demands of their contracts. Universities tend to resent private firms tapping into their resources in this manner without fully involving the universities in those contracts [43].

AID efforts to promote collaboration between universities and private consulting firms may require little more than support for open competition for projects or specification of preference for collaboration in AID's Request For Proposals. Both methods require AID to match the strengths of each private firm and university with the particular demands of individual projects.

A Title XII-type mechanism may prove advantageous for projects that fall into universities' field of comparative advantage, such as long-term institution-building activities. The proposed Institutional Linkages program is designed, in part, to accomplish this. AID could maximize the use of open competition as a means of finding the best contractor in cases where no candidates have inherently superior strengths, but simultaneously universities could be ensured access to the types of projects for which they are best equipped.

Increased use of AID contracts that specify the desire for joint university/private firm activities may provide another means for fostering collaboration in AID projects that would benefit from the involvement of both a university and a private consulting firm. For example, private sector development projects that also have training components would likely benefit from joint participation.

Awarding joint study grants to universities and private consulting firms also may provide an effective method for contributing to the available development literature. Private firms perform the majority of AID project evaluations and, therefore, serve as reservoirs of knowledge on past AID projects. Universities have the capacity to synthesize that knowledge and develop it into more generally applicable theory. The entire international development community could benefit from collaborative efforts geared at creating improved frameworks and hypotheses for understanding past development efforts and improving future ones.

University/Agribusiness Linkages

U.S. agribusiness experience working in Third World countries has been scant, as are examples of U.S. university/agribusiness collaborations in development assistance projects. Despite the growing emphasis on integrating the private sector into AID's development work, the resources of U.S. agribusiness largely remain untapped. The dearth of agribusiness participation in AID's development assistance activities can be attributed largely to two factors: agribusiness firms' inability to see a place for themselves in development assistance, and AID's difficulty conceptualizing and developing a direct, meaningful relationship with agribusiness.

Universities and agribusiness have worked together effectively on the domestic front and maybe able to transfer that collaboration abroad success-

fully. Private businesses have played a role in determining the research agenda at universities and then providing support for that research. Private firm representatives serve on university advisory committees and governing boards, and agribusiness firms frequently participate in university conferences.

For example, U.S. universities and domestic agribusiness firms recently launched the National Agribusiness Education Development Project with the support of USDA. This project, sponsored by 30 agribusiness firms, aims at encouraging the creation of a model masters degree curriculum and developing anew way to deliver agribusiness education. The project should offer benefits to both communities: for agribusiness, it provides an approach to help narrow the gap between the demand for professional agribusiness managers and the supply of trained graduates; for universities, the project shows agribusiness support for academic programs jointly managed by colleges of agriculture and of business. Thus, universities and agribusiness have found ways to provide advantages to both communities through collaboration; the international sphere may provide similar opportunities for mutual gains.

Although potential for successful collaboration between U.S. universities and agribusiness firms exists, development assistance activities suitable for agribusiness participation are few. The range of activities for U.S. university/agribusiness collaboration in development assistance activities, is even more narrowly defined.

With decreasing funds allocated to development assistance activities and increasing emphasis on private sector involvement in these efforts, AID has expressed increasing interest in involving agribusiness firms in its development assistance work. Among the possibilities envisioned by the agency is the development of joint activities that require a mix of the type of skills that the two entities have to offer. Agribusiness firms offer capital resources in the form of investment and credit, the provision of goods and services, management acumen and business skills, and an ability to market advanced technology through licensing and R&D work. Many of these strengths could complement the traditional activities carried out by U.S. universities.

University/agribusiness collaboration might help to eliminate some of the tensions between these two communities based on commodity group pressure.

Some agribusiness firms have viewed U.S. university efforts in developing nations as detrimental to the firm's business activities, particularly in cases where the university work contributes to LDC production of a crop that could provide competition for U.S. producers. An emphasis on collaboration between universities and agribusiness in development assistance could reduce this fiction.

By participating in the development assistance process, agribusiness firms may hasten their access to the profits available from Third World markets. Growth and profitability of U.S. agribusiness largely depends on the development of LDC markets for U.S. products. Hastening the development process will provide them with quicker access to these new consumers.

Constraints on University/Agribusiness Linkages

A primary obstacle to U.S. university/agribusiness firm collaboration is difficulty reconciling the contradictory qualities of business oriented agriculture firms with academically oriented universities. The profit nature of agribusiness, and its potential to skew a private firm's ability to act as an objective partner, has often appeared contrary to traditional development assistance objectives and incompatible with the philosophies of AID and the universities participating in this type of work.

International development assistance is not the primary concern or activity of agribusiness firms, as it is with many of the private sector organizations examined earlier. Because these firms do not consider development assistance a priority, much of the competition afflicting university relationships with other development actors does not exist in the university/agribusiness relationship. However, promoting university-agribusiness linkages likely will require powerful incentives.

Approaches in University/Agribusiness Linkages

Universities and agribusiness have had a short history of collaboration in AID-supported development activities. Two agribusiness associations fund individual land-grant university faculty to demonstrate techniques for improving livestock and aquaculture production in developing countries, with the expectation that increased U.S. sales of feed grains will result from this project.

A livestock development project in Belize shows how AID was able to enlist university/agribusiness collaboration in development assistance. Subsequent to successful lobbying of AID by the U.S. Feed Grains Council (USFGC), the terms of the government bidding process specifically required university/agribusiness collaboration. State-level affiliates of USFGC participate in the funding and selection of technical assistance projects conducted by land-grant faculty and staff. University/agribusiness cooperation achieved scant success with this project because some universities participating in the project interpreted the instructions to mean they could hire individual agribusiness personnel rather than develop a joint university/agribusiness endeavor.

The American Soybean Association/AID Liaison Committee was first established as a means to ease tensions among soybean producers, universities, and AID; however, it has evolved into a mechanism for promoting development cooperation. The committee identifies projects that mutually assist LDCs and the U.S. soybean industry [24]. Although still strongly opposed to publicly funded, production-oriented agricultural aid, the Association has developed into a positive force for economic development in developing nations relative to many other U.S. farm groups [60].

Successful university/agribusiness collaboration will depend on identifying the regions and the types of economies best suited for the type of collaborative activities these actors wish to undertake. AID's Asia and Near East Bureau has shown a distinct interest in pursuing agribusiness involvement in their development work, identifying one of its highest priorities to be strengthening collaboration between U.S. agribusiness and AID to develop new markets and investment opportunities.

AID, universities, and agribusiness will need to work together to determine where university/agribusiness collaboration would prove most successful. The best areas for university/agribusiness collaboration may lie in advanced developing countries where the infrastructure for private sector development and profit motives for agribusiness participation already exist. The types of projects suited for joint undertakings might enlist universities to provide project analysis, training, education, and technological support and engage agribusiness to build processing or waste management facilities and to lead the management and marketing systems.

AID established the Bureau for Private Enterprise (AID/BPE) to facilitate access to private sector expertise. Working with AID/BPE and BIFAD, AID could establish an advisory committee to examine mechanisms for promoting and directing university/agribusiness cooperation. The U.S. Department of Agriculture (USDA), and particularly the Private Sector Relations Division of its Organization for International Cooperation in Development, could promote similar discussions.

AID may not prove the best candidate for organizing joint endeavors between universities and agribusiness; USDA may prove a better facilitator of university/agribusiness collaboration. First, USDA and agribusiness have a long history of working together; they are comfortable with each other and familiar with each other's policies. Second, unlike AID and agribusiness, USDA and these firms tend to share many of the same objectives. This shared philosophy may promote a more compatible working relationship.

University/Federal Agency Linkages

Although the primary channel of U.S. university involvement in development assistance has been through the Agency for International Development, other Federal departments and agencies have international offices active in international agriculture, natural resources, and environmental affairs. Many of these have established cooperative arrangements with AID.

Among the relevant offices are: USDA's Office for International Cooperation in Development and Foreign Agriculture Service, the Forest Service's Office of International Forestry and Forestry Support Program, the Environmental Protection Agency's Office of International Activities, and international offices of the Department of the Interior (e.g., National Park Service, Fish and Wildlife Service) and National Oceanic and Atmospheric Administration. These offices historically are small and marginal to the primary mandate of their own institutions, but they may expand their efforts with the increasing international concern over sustainable agriculture and environmental issues, and streamlining of AID activities.

USDA has long had a close relationship with U.S. land-grant universities (and through them, to U.S. agribusiness) related to domestic agricultural and, more recently, natural resource and environment

teaching, research, and extension. It also has had authority since 1977 to participate in multi-institutional international research and extension, and to strengthen U.S. colleges and universities to help them participate in this collaboration (see box 4-A).

Thus, USDA's support for international agricultural and environmental activities could be expanded, especially in those areas that provide clear benefit to the United States. It is becoming increasingly clear that, to remain economically competitive and environmentally sound, U.S. agriculture will need access to new crop varieties, new pest and disease control materials and techniques, and new information on the workings of various agroecological systems.

For example, USDA, U.S. universities, and overseas institutions might fund new Collaborative Research Support Programs (CRSPs) to investigate crops of mutual importance. The eight extant CRSPs have provided substantial benefits to the supporting countries, including the United States. For example, nearly every commercial sorghum variety sold in the United States is derived from varieties developed through the Sorghum and Millet CRSP. The Bean and Cowpea CRSP used germplasm from developing countries to develop bean varieties that have generated approximately \$12,960,000 for Michigan farmers alone [25]. Similar collaborative programs could be established for research on other major commodities.

USDA might increase support for scientists from U.S. universities to conduct collaborative research at International Agricultural Research Centers and through other international research and development networks (e.g., the International Biotechnology Collaboration Program). As previously noted, AID does not match its core contribution to the IARCs with funding for participation in IARC activities. This participation provides U.S. scientists exposure not only to knowledge and research results generated by the Center, but also to the work of visiting scientists from Europe and elsewhere.

However, to date USDA has devoted little effort and resources to international agriculture. According to one estimate, USDA invests no more than 1 percent of its research funds annually in international agricultural research activities; less than 25 researchers and 100 counselors and agricultural attaches are posted overseas to implement USDA

Box 4-A-Current Legislative Authority for USDA Support of International Agricultural Research, Extension, and Technical Assistance

Public Law 95-113: National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended*:
SEC. 1458. INTERNATIONAL AGRICULTURAL RESEARCH AND EXTENSION

(a) **AUTHORITY OF THE SECRETARY.**--To carry out the policy of this subtitle, the Secretary (in consultation with the Agency for International Development and subject to such coordination with other Federal officials, Departments, and agencies as the President may direct) may—

- (1) expand the operational coordination of the Department of Agriculture with institutions and other persons throughout the world performing agricultural and related research and extension activities by—
 - (A) exchanging research materials and results with the institutions or persons; and
 - (B) conducting with the institutions or persons joint or coordinated research and extension on problems of significance to food and agriculture in the United States;
- (2) enter into cooperative arrangements with Department and Ministries of Agriculture in other nations to conduct research, extension, and education activities in support of the development of a viable and sustainable global agricultural system, including efforts to establish a global system for plant genetic resources conservation;
- (3) enter into agreements with land-grant colleges and universities, the Agency for International Development, and international organizations (such as the United Nations, World Bank, regional development banks, the International Agricultural Research Centers), or other organizations, institutions or individuals with comparable goals, to promote and support the development of a viable and sustainable global agricultural system;
- (4) further develop within the Department highly qualified and experienced scientists and experts who specialize in international programs, to be available to carry out the activities described in this section;
- (5) work with transitional and more advanced countries in food, agricultural, and related research, development, and extension (including providing technical assistance, training, and advice to persons from the countries engaged in the activities and the stationing of scientists and other specialists at national and international institutions in the countries);
- (6) expand collaboration and coordination with the Agency for International Development regarding food and agricultural research, extension, and education programs in developing countries;
- (7) assist colleges and universities in strengthening their capabilities for food, agricultural, and related research and extension that is relevant to agricultural development activities in other countries through-
 - (A) the provision of support to State universities and land-grant colleges and universities to do collaborative research with other countries on issues relevant to United States agricultural competitiveness;
 - (B) the provision of support for cooperative extension education in global agriculture and to promote the application of new technology developed in foreign countries to United States agriculture; and
 - (C) the provision of support for the internationalization of resident instruction programs of the universities and colleges described in subparagraph (A); and
- (8) establish, in cooperation with the Secretary of State, a program, to be coordinated through the International Arid Land Consortium, to enhance collaboration and cooperation between institutions possessing research capabilities applied to the development, management, and reclamation of arid lands.

(b) **ENHANCING LINKAGES.**--The Secretary shall draw upon and enhance the resources of the land-grant colleges and universities, and other colleges and universities, for developing linkages among these institutions, the Federal Government, international research centers, and counterpart agencies and institutions in both the developed and less-developed countries to serve the purposes of agriculture and the economy of the United States and to make a substantial contribution to the cause of improved food and agricultural progress throughout the world.

(c) **PROVISION OF SPECIALIZED OR TECHNICAL SERVICES.**--The Secretary may provide specialized or technical services, on an advance of funds or a reimbursable basis, to United States colleges and universities and other nongovernmental organizations carrying out international food, agricultural, and related research, extension, and teaching development projects and activities. All funds received in payment for furnishing such specialized or technical services shall be deposited to the credit of the appropriation from which the cost of providing such services has been paid or is to be charged.

¹Authorization for international agricultural research, extension, and collaboration was established in the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (Public Law 95-113) and was substantially amended by the Agriculture and Food Act of 1981 (Public Law 97-98, sec. 1436), the Food Security Act of 1985 (Public Law 99-198, sec. 1418), and the Food, Agriculture, Conservation, and Trade Act of 1990 (Public Law 101-624, sec. 1613).

activities. In contrast, France's Center for International Agricultural Research and Development disseminates nearly 800 professionals worldwide [25]. Expanding USDA's international activities thus is likely to require expansion of international office staff and new funds.

In response to the 1990 reauthorization of USDA programs to strengthen the international capacities of State universities and land-grant colleges, USDA and the U.S. universities, under the leadership of the National Association of State Universities and Land Grant Colleges, are proposing a \$25 million International Agriculture Program Initiative (IAPI). The goal of IAPI is "to promote international research, extension, and higher education programs in the U.S. self-interest and to bring the economic benefits of international work to U.S. farmers" [48]. Key components of IAPI fall in four primary areas.

- Research—strengthening international research capacity of land-grant university scientists, grants for research relevant to international competitiveness of U.S. agriculture, and funding to conduct collaborative international agricultural research.
- Extension--expand bilateral technical assistance and promote application of new technologies developed overseas to U.S. agriculture.
- *Higher Education--expand* curricula and support faculty and graduate participation in international food and agricultural endeavors.
- *National Agricultural Library--expand* collection and transmission of international agricultural information relevant to U.S. agricultural competitiveness.

The proposal currently is under consideration by university, commodity, and congressional groups.

NEW DIRECTIONS FOR UNIVERSITY PARTICIPATION IN DEVELOPMENT ASSISTANCE

Since shifting its direction for development assistance, AID also has identified additional development needs and opportunities that may offer new opportunities for university involvement. These include: 1) sustainable agriculture and natural resources management, and 2) links with advanced developing countries and attention to second generation problems of institutions.

Sustainable Agriculture and Natural Resources Management

Sustainable agriculture and natural resources management have received heightened AID attention in the past few years. Sometimes the two are addressed separately and sometimes together. Their growing importance can be seen in the Plan for Supporting Natural Resources Management and the Natural Resources Management Support project for Sub-Saharan Africa; the environment and natural resource strategy for Central America; the BIFAD Task Force on both issues; the current Asia and Near East Bureau's development of a natural resource management strategy; and the S&T Office of Agriculture review of its strategy.

Obligations for this work are not well documented, but appear to have increased since the 1970s and may have reached a plateau for the immediate future. International attention to these two areas continues to increase, implying that obligations for this work may not be keeping pace. While activities and funding for these areas have increased, it is not clear to what extent universities can benefit. A number of factors may limit their involvement:

- . Only a small number of U.S. schools are perceived to have the expertise to perform sustainable agriculture and natural resources management technology research and transfer in a developing country context [8].
- AID's focus is no longer on research nor the type of large-scale institution-building that universities have contributed to in the past. Much of AID's work is geared to PVOs and nongovernmental organizations, in part because they also have relevant expertise and also because AID hopes to leverage their funds for this work. (The Bureaus for Africa and for Latin America and Caribbean stress the role of nongovernmental organizations in their environment and natural resource strategies.)
- . Title XII has done little to promote university involvement in environment and natural resources [78].

AID's new Environment Initiative and BIFAD's recent establishment of the Standing Committee on Sustainable Agriculture reflects a growing interest in AID and the U.S. university community in environmental and natural resource issues. Still, much of AID's increased work is seen as responding

to proactive private organizations. Environmentally sustainable development issues are of growing concern to many contemporary development actors within the university and PVO communities. U.S. universities and PVOs have separately carried out a number of activities involving natural resource management in the past. University/PVO collaboration may serve as an effective means for addressing environmental issues.

University development of proposals for university involvement, and for building the capability to carry out natural resource and environmental work—in training, research, policy, institution building, or other activities—would be a way to gain further AID interest and support. For Title XII universities to cultivate these opportunities will require outreach from the colleges of agriculture (that tend to control technical assistance programs) with other parts of the university with relevant expertise, particularly environment and natural resources management. Significant potential in these areas also lies outside the Title XII universities, and in fact much of the work that has been done has been undertaken by non-Title XII schools. A 1988 BIFAD document notes that:

The diverse talents in the forestry schools, departments of fisheries and wildlife, in faculties of range, soil, ecology, and in the varied water programs areas have had limited involvement through Title XII programs to date. Yet they have important capabilities in both project development and human and institutional development that can improve the developing countries' capacity for forming and implementing economic and social policies that integrate environment, natural resources, and sustainable agriculture issues [78].

Substantial opportunities as well as challenges for university collaboration lie in fields that are relatively new to the development assistance agenda, but that have rapidly gained importance. Sustainable agriculture, policy research and analysis, and environmental issues in recent years have emerged as priorities in development assistance programs. Through joint efforts, universities may develop a comparative advantage at:

- conducting research on environmental issues and developing designs and strategies for related projects,
- building or enhancing indigenous capacity to provide sustainable agricultural technology, and
- developing links between experts in specific fields at different institutions to provide much-needed information and analytical capacities in policy reform.

However, neither AID nor universities have taken advantage of the range of resources available for such collaborative ventures. Data banks and personnel rosters of all staff who have the interest and expertise required for project activity could be developed and made available.

Collaborative efforts among consortia members, or other linkages, should make course offerings in such areas as sustainable agriculture, low-resource agriculture, and agroforestry accessible to a larger number of students across the various universities. Furthermore, universities can collaborate to offer a unique service in development assistance by directing training for a specific country or region. The University of Wisconsin and Purdue University effectively carried out such a program for 300 Brazilian students, administering programs spread over more than 30 institutions.

AID recently has established the Sustainable Agricultural Systems Collaborative Research Support program (CRSP) in response to congressional mandates. AID has requested the National Academy of Sciences to assist in development of this CRSP:

The NAS will appoint a panel of experts from U.S. and international institutions; identify researchable constraints to sustainable agriculture; identify required component disciplines; develop mechanisms for integration of components; and design a global implementation plan for a sustainable agriculture CRSP [100].

Supporting universities have not been identified, but clearly could play a prominent role.

Finally, the LARCs have identified sustainable agriculture as an important goal of their international agricultural research programs. In general, the IARCs have incorporated research related to agricultural sustainability into ongoing work “as the issue has gained salience and its omission in the past has been seen to have incurred costs or added risks” [18]. In fact, the underlying mission of the CGIAR system has been modified by experience with nonsustainability of some systems developed:

While the system was born with the mission of increasing total food production potential in developing countries, it is ever clearer that this objective is tempered by sustainability considerations, by the need to lower external inputs, and by the need to support poor people who live in less-favored areas that will never contribute substantially to aggregate food production [18].

Most IARCs have some work underway related to the physical, biological, and socioeconomic determinants of sustainable systems. Despite recognition of the high priority of agricultural sustainability concerns, however, many IARCs are “reluctant to reallocate existing resources so rapidly as to endanger the successful completion of ongoing research” [18]. Increased support, both financial and human, probably is required for a major increase in IARC attention to sustainable agriculture. AID, USDA, and U.S. universities could assist these efforts.

Second Generation Development Assistance

The other two new development opportunities—building links with advanced developing countries and addressing second generation problems of developing country institutions--do not receive substantial funding but they may offer significant potential for university involvement. One AID official has characterized aspects of these emerging opportunities:

A new wave of projects appears to be emerging of a “second generation” character where AID is returning to developing country universities which it formerly assisted and establishing a new round of project assistance. This second generation of assistance will likely be of a different order with the focus less on institutional pairing than on assisting the revitalization of the host-country university through collaboration with faculty and networks from a wide range of universities in both the developed and developing countries [32].

A current criticism of U.S. assistance is that once the United States is successful in helping a country develop, AID's ties with the country are cut and the United States is less able to benefit from this success. Increased attention is being paid to the concept of “mutual benefits” of assistance, in which both the recipient and the United States gain. An example of mutual benefits in agriculture would be using assistance to link U.S. public and private

agricultural research agencies with countries that have developed strong national agricultural research systems to conduct research of benefit to both countries.

There is one concern about how development oriented this work would be, since the focus would probably be on more advanced research topics. Questions arise about AID's involvement given its present mandate. Another U.S. agency, such as USDA or the National Science Foundation might be more appropriate.

A further difficulty may arise from a strong U.S. domestic constituency arguing that development assistance should not lead to developing country competition with U.S. exports (see box 3-A inch. 3). A focus on the less developed countries has partly avoided this problem since many of these countries do not pose serious competition to U.S. producers, at least in the short-term. The advanced developing countries on the other hand could pose more serious competition, and programs to collaborate with them may engender greater domestic political opposition.

Agricultural institutions that have received U.S. foreign aid now may be facing criticisms on the relevancy/effectiveness of their work and even wondering about their continued existence. U.S. universities could play a role in addressing some of these problems by:

- educating the next generation of faculty;
- providing access to advances in science and education;
- helping build new programs (e.g., in the social sciences, agribusiness, natural resources and environment, and forestry);
- helping the school play an increased role in research or policy advice;
- finding alternate funders; and
- linking to constituency groups.

At the same time, schools in developing countries may need to reduce their emphasis on increased agricultural production, avoid overspecialization and the fragmentation of disciplines, and focus instead on being an agent of rural development. This means emphasizing employment, income generation, environment and natural resource management, and rural policy and institutional issues [30,31].