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U.S. Universities and the World Food Problem

Inadequate funds still limit employment of U.S. scientists in developing countries despite remedial legislation.

Morris D. Whitaker and E. Boyd Wennergren

The production of food in the developing world is projected to increase at a substantially slower rate than the demand for food during the next decade and, in most countries, is not even expected to keep pace with growth in population (*1*). The growing deficit will require increasing dependence on food imports from the developed world where surpluses are forecast. However, many developing countries simply will not be able to export enough of their own goods to finance their food imports and will experience increased hunger and malnutrition, especially among their low-income masses. Furthermore, the deficit could be suddenly worsened in any year by universally poor weather which would result in outright starvation among relatively large segments of populations of the poorest countries.

Consequently, the problem of how to increase the rate of food production in the developing world is an urgent one. There is an emerging consensus that this will require, among other things, greatly increased investment in indigenous capacity for agricultural research which has been described as ". . . a critical

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missing link in the agricultural development process in many countries" (*2*, p. 287; see also chaps. 11 and 12). Indeed, there is extensive evidence that public investment in such programs and in the agricultural scientists and technicians that these programs require has consistently generated relatively high social returns in both developed and developing countries (*3*).

Unfortunately, in Third World countries it is the lack of scientific and technical manpower which seriously restricts their capacity to develop a viable agricultural research system (*4*). The training of their own agricultural scientists, by itself, is not a practicable solution, because of the time required for such training. When trained abroad, many scientists from the developing world often remain in the more developed countries because of the relatively high salaries. Increased investment now, by developing countries, in the training of more agricultural scientists and in higher salaries is an obvious prerequisite for agricultural development in the longer run. However, if significant progress is to be made in increasing the rate of food production in the interim, a large share of the necessary scientists and technicians will have to be brought in from the developed world.

One of the world's most concentrated sources of agricultural scientists is the land-grant university system and other U.S. universities with agricultural programs. The research and extension components of these universities have been instrumental in the development of the highly productive agriculture that characterizes the United States (*5*).

Unfortunately, a resource constraint in U.S. universities has seriously limited the number of agricultural scientists and technicians that have been employed in the developing world. In an attempt to increase the involvement of U.S. university scientists in international agriculture, the Foreign Assistance Act of 1961 was recently amended with a new Title XII. In this article we will consider (i) the rising demand for scientists in Third World agriculture, (ii) the nature and consequences of the resource constraint in U.S. universities, and (iii) the likelihood that recently passed legislation will remedy the problem.

International Demand for Scientists

The domestic market for U.S. agricultural scientists is relatively good. In the international job market, the demand for agricultural scientists is increasing, especially within the less-developed world, and can be expected to continue to increase for several years.

This rising demand has two principal sources. First, increased prices of crude oil have resulted in a cadre of "new-rich" countries in the developing world. These countries are directing at least part of their large foreign exchange earnings toward modernizing their agricultural sectors and, to accomplish this objective, they are importing relatively large numbers of scientists to provide technical assistance. Concomitantly, they are sending hundreds of their young college graduates and civil servants abroad for advanced training in agricultural sciences. Furthermore, government agencies of several developing countries are now directly approaching U.S. universities for technical assistance and training programs. Despite these efforts, however, it will probably take most developing countries many years to assemble the number of domestic agricultural scientists they need and to develop the complementary public services and institutions.

The second source of today's international demand for agricultural scientists is based on the recent world food crisis. In many of the "poor" developing countries, recent food shortages have caused a further deterioration in what was already a substandard diet for millions of people. These demonstrations of the sharp disparity between the agricultural production, importation, and distribution capacities of the developing countries and their demand for food have prompted the developed world (especially the United States) to propose facilitating increased access of these countries to technical agricultural assistance programs (*6*).

The response of U.S. universities to such demands has been relatively limited. In fact, when viewed in relation to their total programs, most universities have only been marginally involved in providing technical assistance to agriculture in developing countries. This may generally be attributed to the restricted resources available for such programs.

A Resource Constraint

Inadequate and uncertain funding of international technical assistance programs at U.S. agricultural universities is manifest in three principal internal conditions. These are (i) failure to recognize technical assistance to international agriculture as a legitimate university mission, (ii) inefficient internal organizations for international programs, and (iii) lack of incentives at administrative and staff member levels to support and accept technical assistance assignments in developing countries. These conditions are highly interdependent.

Many U.S. agricultural universities have been and are involved in technical assistance to foreign countries, but such activities have not been recognized as a legitimate university mission in the same sense as domestic teaching, research, and extension. International programs have generally operated on an ad hoc basis, with domestic programs routinely given a much higher priority. Even those universities which have had programs in developing countries for decades are still essentially provincial entities serving individual state or regional needs in the United States. All universities with international programs must regularly reaffirm, as they petition local legislators or private entities for support, dedication to their primary missions of domestic teaching, research, and extension (service) that satisfy perceived local needs. In fact, many U.S. universities have a significant number of administrators, and confront state legislators and agricultural organizations, who are either covertly or overtly antagonistic to international technical assistance activities, viewing them as aberrations that compete with the legitimate missions of the university.

The existing administrative organization at most universities is the second condition that is symptomatic of the limited resources for technical assistance programs. The common practice now is to have the staff of an office or division of international programs write the proposal for technical assistance services, recruit the staff, enter into contractual arrangements, and administer all aspects of the project. Only an irrationally altruistic dean or department chairman would enthusiastically support technical assistance programs that are designed for foreign consumption, controlled by a nonacademic office, and competing for his best people when local programs are much easier to administer and the pressures so much more immediate and politically demanding. The most that can be expected under this system is an "I'll do what I can" attitude.

The third principal condition, the lack of incentive, is operative at the administrative level in both colleges and departments, as well as with individual staff members. In all instances, the disincentives derive mainly from the restricted and uncertain resources for technical assistance programs within the universities and the resultant inability of

universities to guarantee affected scientists that their careers (present value of future earnings) will not suffer from involvement in technical assistance programs.

Although there are exceptions, academic departments are usually very reluctant to nominate staff members to service a technical assistance assignment who have established reputations for excellence and who are engaged in domestic programs that capitalize on such excellence. Their release usually leaves a college and department without needed competence, and domestic programs may be jeopardized. Although adjustments in departmental personnel assignments are usually possible and can be funded with the money previously used to support the departed scientist, such adjustments are nevertheless inconvenient and costly. Also, the department still faces risks that may be unacceptable in the absence of incentives or guarantees. A "new" staff member is an unknown entity (especially when viewed through the eyes of a wary administrator) and, because he might not be productive enough to remain with the department, there is the risk that recruiting and domestic program costs might rise substantially.

Ultimately, the department must find other sources of funding if the new staff member is to continue with the department, and this assurance is usually critical to the person's initial acceptance of the position. In essence, deans and department chairmen must be willing to hire staff on so-called "soft" funds with all the associated risks and uncertainties. A premature return of a staff member from foreign assignment because of health, early contract termination, or other reasons can present especially vexing difficulties. Universities have no contingency funds assignable to such exigencies. Their only possible response is to adjust current operating budgets at the expense of domestic programs.

At the individual level, passivity generally prevails. The scientist intent on a successful university career, in most cases, views the offer of a long-term foreign assignment as a detour fraught with unknowns. It diverts him from his current research or academic program for an extended period and requires a readjustment upon his return. The problems can be increased if his existing program is not maintained during his absence or is not to be reassigned to him upon his return. Also, university administrators who make salary and other personnel decisions often consider technical assistance work to be less "scientific" or less "sophisticated" than domestic research and therefore not as professionally creditable and deserving of salary increases or tenure credits. Even ostensible economic gains may be significantly discounted by the scientist when he judges these against the opportunity cost of leaving obvious professional growth opportunities and against the problems of family readjustment. For staff without tenure or those facing imminent promotion decisions, technical assistance assignments can be, at best, marginally appealing.

Consequently, there is a relative shortage of tenured and senior staff members in technical assistance teams sent abroad for long terms under university sponsorship, since universities are forced to recruit from outside their resident staff (*7*). While nonuniversity personnel may have extensive experience, at best their commitment to the involved university is only to a given technical assistance assignment. Further, they often lack the technical skills in research and extension that typify scientists in the university system. This point is critical, because evidence suggests sophisticated scientific input is vital to agricultural development (*8*). The team members who do come from the university staff too often include individuals considered expendable, those who cannot qualify for tenure, dissidents looking for a change, or the young and inexperienced who are intrigued by the supposed economic rewards. The general image conveyed to donor agencies who pay large amounts of money for these services and to host-country institutions who have limited control over the quality of the services they receive is, understandably, often negative (*9*).

Recent Legislative Reform

The recently enacted International Development and Food Assistance Act of 1975 is an important first step in institutionalizing adequate and long-term federal financial support for U.S. university involvement in technical assistance. Section 312 of the 1975 act adds to the Foreign Assistance Act of 1961 a new Title XII, "Famine Prevention and Freedom from Hunger," which is designed to enlist fuller and more effective use of land-grant and other U.S. agricultural colleges and universities in agricultural technical assistance (*10*).

Title XII provides assistance to agricultural universities and colleges in the areas of teaching, research, and extension, both to strengthen their capability for technical assistance and to implement programs for (i) building and strengthening similar institutions and human resources in developing countries; (ii) collaborating with developing countries in long-term research in all aspects of food production, marketing, and consumption; (iii) participating in the international network of agricultural sciences including international research centers, United Nations agencies, and national institutions of the developing countries; and (iv) providing program support for international research centers, carrying out specific research projects, and developing and strengthening national research systems in developing countries. Implied is the development of a staff for international agricultural development and technical assistance at U.S. universities.

Title XII accords a much stronger role to U.S. universities. While authority under Title XII is vested in the President, it is exercised through the administrator of the U.S. Agency for International Development (USAID) assisted by a permanent seven-man Board for International Food and Agricultural Development (hereafter referred to as the Board). The Board has broad responsibilities and duties in the administration of Title XII, including planning, developing, implementing, and monitoring university involvement. At least four of the seven members of the presidentially appointed Board must be from the university community, thus assuring firm university involvement in policy and program formulation.

While the intent of Title XII is clear, it has a serious weakness. This is the failure of Congress to directly and clearly define the method for funding university involvement. Further, no specific amount of money is authorized for appropriation. Rather, Title XII authorizes, for the purposes of the Title, any funds made available under Section 103 (Food and Nutrition) of the Foreign Assistance Act of 1961 with the Board to recommend apportionment of the funds. Traditionally, monies authorized and appropriated under Section 103 have been used to finance USAID programs in agriculture.

Thus, it is probable that Board recommendations for implementing Title XII will be in direct competition with traditional USAID programs and encounter resistance within that bureaucracy. The amount and nature of funding arrangements for the universities still must be developed by the Board and the administrator of USAID with funds to be diverted from traditional USAID programs. In short, the resource constraint limiting

U.S. university participation in technical assistance still exists and vested interests in USAID may preclude effective implementation of Title XII.

The funding arrangements that are developed between USAID and the involved universities must assure adequate levels and tenure of funds if the existing resource constraint is to be removed. Longevity of funding is probably the more critical problem. Financial support must be guaranteed for a sufficiently extended time period to permit administrators to recruit and develop their staff (pretenure periods are 5 to 7 years at most universities). An adequate level of funds for developing and backstopping staff for any given technical assistance program is also necessary. Such funds must be sufficient to cover real (rather than perceived) direct and indirect costs with some mechanism for adjusting the level of funding based on experience. Individual scientists serving on technical assistance teams should not be expected to bear program costs (in the form of inadequate housing allowances, exclusion from postal and commissary services, and reduced post differentials) as is currently the case under some USAID "host-country" contracts. Such false economy or failure to account for the real costs of technical assistance can only result in propagation of the existing resource constraint. Finally, each university should have its region or focus of subject matter explicitly defined. This will result in a division of labor and specialization among involved universities and scientists which will permit the system's expertise to be effectively motivated, coordinated, and directed toward solving critical development problems.

Fortunately, level and tenure of funds need not be impediments to development of a viable mechanism for funding Title XII under the 1975 act. Funds from Section 103, for the purpose of Title XII, are not subject to any funding limits or country restrictions that are in effect in other sections of the Foreign Assistance Act. Also, funds under Title XII are exempt from the 3-year funding limitation of the act. Thus, if the issues of tenure, level of funding, and region or subject matter focus are clearly addressed by the Board and USAID, significant progress can be made in reducing the resource constraints and increasing the employment of U.S. agricultural scientists in international technical assistance.

However, a more positive approach would be for Congress to authorize the appropriation of a specific amount of money for implementing Title XII, define the funding mechanism, and specify the tenure of the program. For example, the amount historically spent on university contracts by USAID under Section 103 could be specifically earmarked for Title XII and provide the basis for future appropriations. The Board and USAID could then address the issues of program development rather than sources of funding.

Long-term federal funding on a formula basis has been provided for several decades in the development of the very successful system of experiment stations and extension services in the land-grant universities. Despite the dissimilarities between domestic and international involvement, there is a strong base for expecting that such funding applied to development of technical assistance as a university mission would be equally successful. Despite its obvious intent, the International Development and Food Assistance Act of 1975 does not directly provide such funding and consequently does not clearly address the existing resource constraint in U.S. universities.

Summary

The imponderable now is time. Certainly, it is in short supply if we hope to improve the world's prospects for food production. The requisite scientific skills that can contribute to greater world agricultural production exist in a uniquely concentrated form in the U.S. universities. Incentives for increased university involvement in technical assistance created by the International Development and Food Assistance Act of 1975 will not become effective until a mechanism which guarantees adequate and long-term funding is established. A continuing dialogue to define the nature and scope of needed reforms is necessary if maximum involvement of U.S. scientists in agricultural technical assistance is to be realized. Such involvement is vital in meeting the food needs of the developing world.

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5. For example, see R. E. Evenson, thesis, University of Chicago (1968); Z. Griliches, *Am. Econ. Rev.* **54**, 961 (1964).
6. International Development and Food Assistance Act of 1975 (PL 94–161, 94th Congress, 1975).
7. In a letter survey of ten universities conducted by M. D. Whitaker and E. B. Wennergren in April 1975 (seven of the universities responded), on average 30 percent of the long-term assignments (2 years or more) were recruited outside the regular university staff. The range was from 78 percent to 11 percent. No evaluation was made of individual staff excellence.
8. R. E. Evenson, paper presented at the Agricultural Development Council Conference on Resource Allocation and Productivity in National and International Agricultural Research, Airlie House, Virginia, 26 to 29 January 1975.
9. There are obviously specific exceptions to this general argument.
10. The final version of the bill passed on 4 December by the Senate and 10 December by the House and signed into law on 20 December 1975 (PL 94–161) is discussed here. The original version of the legislation was introduced by Congressman Findley (R–Ill.) and would have provided for direct funding to land-grant universities. The Findley Bill was incorporated in H.R. 9005 and is the basis of Title XII in the International Development and Food Assistance Act of 1975.

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