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**THE USDA's SCIENCE AND EDUCATION PROGRAM:
OPPORTUNITIES FOR INTERNATIONAL COLLABORATION***

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It is a pleasure to be back in the Department of Agriculture and to discuss what we consider to be an important issue. The Department is a unique "ministry" and we both are proud to have been associated with it for so many years, both as one of its officers and as a professional colleague. We have visited many sister ministries around the world and have yet to find one that comes close to what the Department of Agriculture does.

We want to talk with you today about strengthening the international component of the Department's agricultural research and education programs. As at least some of you know, I have been chairing a BIFADEC Task Force on how to revitalize this nation's foreign aid program. The report of the Task Force has been completed and submitted to the Board and Advisory Committee. The recommendations contained in the report have important

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implications for the agricultural establishment, and in our view for the science and education agencies of USDA.

In our remarks today we will go well beyond the recommendations of the report on these issues. The Task Force sees unprecedented opportunities for better linkages between the U.S. agricultural and scientific community and institutions in other countries. We believe the Department of Agriculture, and especially its Science and Education arm, can play an important leadership role in facilitating this cooperation.

We will divide our comments into three parts. First, we will provide an overview of the Task Force and its principal recommendations. Then we will discuss the rationale for a stronger USDA role in international collaboration. Finally, we will have some specific suggestions on how we believe the Department of Agriculture might play a more important role in international agricultural research and education.

The Task Force and Its Recommendations

It isn't often that one is able to pick one's colleagues in organizing a policy-driven task force, but I had that fortunate privilege. We indeed had a blue-ribbon panel, made up of Susanna Hecht, an environmentalist from UCLA; James Henson, from Washington State University; Uma Lele, who was then at the World Bank and is now at the University of Florida; John Mellor, who at that time was Director General of the International Food Policy

Institute and is now a private consultant; and Don Plucknett, of the Consultative Group on International Agricultural Research (CGIAR).

The Task Force was based at the Humphrey Institute to provide it insulation from political pressures. It was generously supported financially by the Agency for International Development, the Department of Agriculture, and the Ford, MacArthur, and Rockefeller Foundations. We were given political advice and cover by an advisory committee.

To set the stage for our later discussion, let us try to summarize the main thrusts of the Task Force's recommendations:

1. The international economy has changed dramatically since this nation's foreign aid program first began in the aftermath of World War II, but our aid programs have not changed to reflect this reality. In particular, the emergence of a well-integrated international capital market and the shift to a flexible exchange rate system mean that for most forms of capital, nations can finance their growth from this market. The aid program should thus focus on human capital, which is difficult to finance from conventional markets, rather than on physical infrastructure and general balance of payments support. Human capital includes education and training, research and technology development, and nutrition and health.

2. We need a new paradigm for foreign aid, one which emphasizes international collaboration and cooperation rather than the patron/client relationships of the past, and one that focuses on mutual interests and mutual benefits in developing future programs. The concept of foreign aid should be purged from our lexicon.

3. The international development agencies such as AID, the World Bank, regional development banks, and bilateral agencies are de-emphasizing agriculture. The Task Force believes this to be a grievous error, based in large part on a failure to understand how agricultural development contributes to more general economic development, and that this nation needs to provide the lead in revitalizing international agricultural development.

4. There is a new development agenda which focuses on environmental issues, on the disadvantaged - including women, children, and ethnic minority and majority groups, on democratization, and on the newly liberated countries of Eastern Europe and the former Soviet Union. If the Agency will link its work on these problems with domestic interest groups, including U.S. universities, it can stitch together an effective coalition to politically sustain an effective foreign aid program.

5. International cooperation and collaboration on science, technology, and education, together with health and nutrition should be a central thrust of this nation's aid program. To that end, a center piece of the Task Force's recommendations is a new

Center for Scientific and Technological Collaboration that would be modeled after the NIH, involve peer review of collaborative proposals, and require cost sharing by cooperating institutions.

The report concentrates on the Agency for International Development in its recommendations. However, among the domestic institutions which could be the basis for international cooperation, the Task Force gave considerable attention to the Department of Agriculture. In fact, we worked very closely with the Department. Duane Acker, Charlie Hess, and Harry Mussman were on our advisory committee and came to most of our meetings. The late James Walker worked very hard with some critical staff work for the Task force.

The Rational for a Stronger USDA Role
in International Cooperation

The Department of Agriculture has a number of very important international activities, such as those carried out by the Foreign Agricultural Service, the Office of International Cooperation and Development and the Animal and Plant Health Inspection Service. The 1990 Farm Bill gave expanded authority in international agricultural research and extension and redefined the shared responsibility with AID for food aid programs.

The extent to which international research initiatives have been pursued varies considerably among agencies. The Agricultural Research Service has been less bold in

developing its international programs, in sharp contrast with its counterparts - the Economic Research Service and the Forest Service.

Ironically, in many respects the ARS mirrors the U.S. land grant universities in its neglect of international activities. This probably reflects the rather late integration of the United States into the international economy, the traditional parochialism of a large nation, and the deficiencies of our educational system in educating generations of scientists on the international economy and society.

This neglect of the international economy no longer serves us well, if ever it did. There are a number of important reasons why we need to reach out and develop stronger programs of research on international agriculture. We would like to review some of these briefly.

First, U.S. agriculture is part of an international food and agriculture system. That system has served the global economy quite well in helping it to avoid major famines, except in those cases in which national leaders do not want the international community to know it has a problem. Equally as important, it is a system in which U.S. producers have to compete for markets. That gives much greater emphasis to understanding the forces of comparative advantage that are driving our trade flows. And international trade and competitiveness will be a major determinant of farmer incomes in the decades ahead, as well as the source of improved consumer welfare.

Ironically, it is a rather common myth that understanding international trade and comparative advantage is a problem for the economists. Nothing could be further from the truth. If we want to understand where our comparative advantage will lie in the future, technical knowledge on productivity, on the level of technology, and on the potential for disease and pests to affect the level of output is essential. That means there is as big a role for the biological and natural scientists as there is for the social scientists. Moreover, they need to work together.

Second, the key to future markets for U.S. producers will lie in the developing countries. It will not lie in Europe, or even in the Soviet Union. Thus, fostering economic development in the developing countries is essential to future U.S. markets, and the key to fostering economic development in those countries is to promote technologically-based agricultural development. It is the only way to promote broad-based economic growth.

Clearly, the domestic political pressures against helping the developing countries to strengthen their technological capacity are strong. But equally as important, those political pressures are misguided. There is nothing that would be more in this nation's self-interest than to collaborate in the development of new technology for the agriculture of the developing countries. Not only will such technology help keep the price of food low in this country, it will help provide the basis of future markets.

Third, an ever larger share of the world's R & D budget is being spent in other countries of the world, including in the developing countries. Moreover, although the United States once was the scientific and technological leader of the world, it no longer is. In case after case the lead has been taken by other countries.

Under these conditions, the United States is now in a position in which it needs to try to capitalize on the new technology being developed in other countries. It must strengthen its ability to capture such information. The most effective way to do that is to be engaged in international research, preferably in collaboration with institutions in other countries.

Fourth, the Agency for International Development's technical capacity in agriculture has declined significantly over the years. The Agency at one time had one of the strongest technical capacities on international agriculture of any country. However, today, its capacity is so limited that it cannot provide good advice to other countries on technological issues, nor can it even effectively assess the quality of its own projects. This provides a golden opportunity for the Department of Agriculture to fill a void.

Fifth, U.S. agriculture is increasingly threatened with pests and diseases from other countries. Moreover, as international travel increases we can expect to experience more and more diseases and pests brought in from abroad. Rather than to try to understand these plagues from abroad once they are here, it would be more effective to do research on them in their sources and thus have defenses established in advance.

Sixth and finally, the Department can play an important leadership role in helping to establish collaborative arrangements between research and education institutions in other countries and the U.S. agricultural research, education, and extension establishment. The potential for strengthening this nation's competitive edge in international markets is enormous. Our students need to have curricula that help them to understand international agriculture and the context in which it operates. If our curricula are to be alive with the latest in new knowledge on agriculture in other countries, our faculty need to be engaged in research in those countries. And if our farmers and other parts of our agricultural sector are to be able to compete, and to know what their competition is, our agricultural system needs to be able to deliver knowledge on international agriculture.

Our colleges of agriculture in recent years have taken significant strides in reforming their curricula to provide a stronger education on agricultural issues than they did even a decade ago. However, researchers in U.S. universities have not responded to the challenge, nor have the extension services. Thus our students are badly served, even though their curricula reflect a concern with international issues. And our clients outside the university community are served even more poorly. We need a greater involvement in international agricultural research for our academic researchers, and we need a major staff development effort with our extension staff.

In meeting these challenges there are important institutional arrangements which need to be developed. Not every agricultural college is going to have the capacity to study the

agriculture of all parts of the world. However, there can be some important specialization among universities, with the research faculty in particular universities sharing their knowledge with the students in other universities. Thus, we need the means by which students can move more easily from one university to another, depending on their individual interest.

Similarly, researchers need a mechanism to discover where the competent faculty are in other countries and to find ways to link up with them. The recently created University Center for Cooperation in Development in AID may be able to partially serve this need but the USDA also should play a role by providing the mechanism by means of which U.S. faculty can link up with agricultural researchers in other countries.

Finally, the USDA Extension Service has a major role to play in developing training and educational programs to help the field staff to come up to speed on international issues. Our perception is that both the field staff and the specialists will be responsive to such programs.

Some Specific Suggestions

If the USDA is to capitalize on unprecedented opportunities we have described for international collaboration, a strategy and plan of action needs to be developed. As a start, we suggest eight specific new initiatives.

First, the USDA should make the case that it can provide a better home for technical assistance in food and agriculture than does AID. Since the in-house technical capacity in AID has declined so significantly, an alternative source of such knowledge needs to be developed. The USDA is the logical place for developing it. Furthermore, the leadership of AID seems more interested in serving as an arm of the State Department than in addressing agricultural development issues. The executive branch needs to reexamine the division of labor between AID and USDA in light of changing interests and capabilities in the two organizations. The university community, clients of both agencies, will undoubtedly have views to express on those issues and the committees of the Congress that have jurisdiction over appropriations and authorizing legislation may have the final say in any new arrangements.

Second, the Department should become the host of the Collaborative Research Support Program (CRSP). The CRSP is an \$18 million AID program that links over 30 U.S. universities with developing country scientists in 30 countries to work on natural resource and food problems of mutual interest. In addition to the AID funds, U.S. universities and developing countries contribute significant resources to the CRSP, sharing the costs as well as the benefits. The ARS, which has only token participation now, could strengthen its own domestic research program from active involvement in the CRSPs. And their full participation would enlarge the pool of scientific talent that could be brought to bear on serious food and natural resource problems both at home and abroad.

Third, the USDA should be the home for and provide the leadership to the International Agricultural Research Center (IARC) program, currently the responsibility of AID. That program provides about \$50 million per year to a network of 16 international centers under the auspice of the Consultative Group on International Agricultural Research (CGIAR) and a few other independent research centers. Supported by over 40 international donors, these centers focus on food crops, livestock diseases and management systems, natural resources, germplasm conservation, agricultural inputs and food policy issues. Their quest for solutions to third world problems often uncovers clues to U.S. food problems-- sometimes before the problem is recognized here.

The USDA research agencies have too few ties with this international network and no involvement in the CGIAR discussions that influence policy and priorities for these centers. Both the U.S. farmers and the Centers are the losers because of these missed opportunities for interaction and cooperation. As the U.S. government lead agency for international agricultural research, the USDA could strengthen its domestic program and the international network at the same time.

Fourth, the Department should seek additional funding from Congress to promote international linkages in science and education agencies. Failing that, consideration should be given to taking 10 percent off the top of each program including, Hatch formula funds, for facilitating international cooperation. These added resources would enable the USDA to expand the CRSP, widely recognized as successful but underfunded.

Fifth, the Economic Research Service should establish a CRSP in agricultural policy. A significant base already exists in the U.S. as well as many developing countries who are struggling to devise policies to move to a market economy or to promote agricultural development. Participants should include representatives from ERS, U.S. universities and interested institutions in other countries.

Sixth, the Forest Service, building on the substantial program it carries out under a reimbursable agreement with AID, should lead a CRSP-like research and educational program in tropical forestry, linking developing country institutions with forestry scientists in USDA and university forestry schools.

Seventh, the Federal Extension Service should organize a network of extension experts with the requisite experience to collaborate with and advise developing country administrators on how to improve their systems. In addition to helping solve a serious problem in third world countries, we would build a knowledge base from which to draw as we try to modernize our own systems at the state level.

Eighth, the Economic Research Service should team up with the Agricultural Research Service to address the problems of comparative advantage. Understanding our long-term comparative advantage is critical to the future of this nation's ability to compete in international markets, and it is the key to allocating our scarce research dollars to high pay-off activities.

Concluding Comments

In the years ahead, U.S. agriculture will face increasing competitive pressures from the global economy to which its future is more and more tightly linked. Farmers and agribusiness will not be well served unless more attention is given to understanding (1) the forces that determine our comparative advantage, (2) the resulting trade flows and (3) the highest payoff areas on which our scarce research dollars should be directed. Under these conditions, research and education programs can no longer limit their scope to the U.S., if ever that was the case. We will need to develop a better understanding of world agriculture and capitalize on knowledge and new technology generated elsewhere. One of the most effective ways to accomplish this is to be engaged in international research, preferably in collaboration with institutions in other countries.

The department has already taken some important first steps to adjust to the changing global economy and the dramatic political developments in the former USSR and Eastern Europe, but these are only a start. Section 1458 of the 1990 Farm Bill gave expanded authority and a new challenges to USDA to become more involved in international research and extension. Some will say we can not afford to take on new challenges in these times of fiscal austerity. Our reply is simply that we cannot afford the consequences of our failure to respond to these new opportunities.