

**Board for International Food and
Agricultural Development
Report from the Conference of Deans**

**Higher Education: A
Critical Partner in Global
Agricultural Development**



September 9, 2008

The Conference of Deans brought together 40 scholars who have invested their individual careers in the provision of an adequate and safe food supply for the people of the world. More importantly, they represented to a very significant extent the institutions that gave the world the last green revolution, and they are prepared to re-engage in that discourse. Let there be no misunderstanding; the paradigms that led to the green revolution were very much “made in America” by Title XII universities and their graduates who work in the laboratories and delivery systems of the private sector. To ignore that capacity and to fail to fully engage with the Title XII system would be sheer folly.

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Introduction—Looking to the Future

The current food crisis has brought to the fore a widespread acknowledgement that the investments and policies in support of the development of agriculture during the last 30 years have been insufficient. The world's wealthiest countries, for example, as a group, cut support for agriculture development roughly in half from 1980 to 2006, to \$2.8 billion per year from \$6 billion, representing a fall from 18% of all official development assistance to less than 3%. The World Bank cut its agricultural lending from \$7.7 billion in 1980 to \$2 billion in 2004. For our part, the U.S. once led the donor world on agriculture, but there has been a long slide over the last 20 years. In the 1990s, for example, USAID supported the training of 15,000 students who earned higher education degrees. Today, there are less than 1,000 such trainees.

Today's crisis has been years in the making; it is the result of decisions made over the last few decades. Studies show, for example, that investment in research and development in agriculture—while it yields high returns of 40-60%—works as a “slow magic,” with the lag between investing in innovation and reaping the rewards measured in decades, not years. Thus, even as we address the current food crisis and respond to the pressing, immediate need, it is imperative to looking forward to the next 30-40 years to better anticipate the trends, the issues, and the investments needed now to avoid the mistakes of the past. Without action, it is projected that today's food crisis will add 100 million more people to the 850 million already food insecure.

There are several key trends that--if left unaddressed--portend a future of food insecurity and instability. Key issues include:

- Agriculture productivity growth is declining, from 2.2% per year in 1970-1990 to a projected 1.2% in 2009-2017 and less than 1% in developing countries. There is a growing gap between food supply and demand and global food productivity must grow by 50% by 2030 to meet demand, according to the UN Secretary General;
- Although private R&D is increasing, via groups such as the Alliance for Food and Energy, public R&D investment in both developed and developing countries is low, leaving local communities and economies more vulnerable and without access to public goods created by public R&D investments such as healthy nutrition practices, rural infrastructure development, and environmental protection;
- Demographic changes such as urbanization in developing countries mean that the infrastructure (transportation, processing facilities, etc.) for agriculture is inadequate. Moreover, rising incomes in many developing countries are changing the demand and supply equation;

- Speculation by large, private, foreign corporations in the face of higher land prices due to supply shortages risks shutting out local development and community involvement leaving the world's 450 million small holder farmers increasingly vulnerable to price volatility;
- Rising energy costs, the switch from food to fuels, trade policies and climate change considerations may all have further detrimental effects on developing country markets.

This paper argues for an integrated approach to a global agriculture development strategy with government working in partnership with the university community, as well as with non-governmental organizations and the private sector, which is playing an increasingly visible and influential role. Today's approach of responding to crisis on the one side of the spectrum and turning to the private sector for growth on the other side of the development spectrum leaves a large gap in the development process. The university community has the knowledge, experience and the research infrastructure to be a key partner with USAID in addressing this development gap. USAID and the university community must reunite as key partners for building capacity and the infrastructure for long-term agriculture development.

BIFAD—Serving as a Gateway to University Knowledge

Key to the USAID relationship with the university community and a focal point for creative partnerships for the future is the Board for International Food and Agricultural Development (BIFAD). BIFAD's mission is to advise and assist the Administrator of the United States Agency for International Development (USAID) with regard to programs and activities relating to agriculture and food security as set forth in Title XII of Chapter 2 of Part I of the Foreign Assistance Act 1961, as amended. With the majority of BIFAD's membership selected from the university community, BIFAD serves as a logical gateway to the resources and expertise for agricultural and educational programs.

BIFAD can assist in identifying and capitalizing on the logical synergy between USAID and the university community to better serve agriculture development goals. The university community brings unique contributions to the table:

- Universities can adopt long-term perspectives on development and offer an excellent mechanism to ensure sustainability of short-term programs;
- Universities represent the only community with the diverse breadth of trans-disciplinary, science-based knowledge capabilities, coupled with the expertise and experience for effective transfer within the global agricultural domain;
- The university community, with its extensive network of global alumni, has the ability to provide domestic and international linkages with and for the US Government/USAID;

- U.S. universities have long-standing and ongoing partnerships with universities and institutions throughout the developed and developing world that can be brought to bear on U.S. development goals and objectives;
- Universities have a range of experiences with the private sector, civil society, and large foundations and can help interlink approaches;
- The university community can serve as an advocate for USAID and long-term agricultural development strategy with Congress and grassroots influencers.

THE CRSP Graduates--Where Are They Now?

For the past 30 years, USAID's Collaborative Research Support Programs have been supporting the development of partnerships designed to empower host country institutions by developing human resource capacity and research competencies in strategic areas of agriculture and natural resource sciences. Since 1978, the CRSPs have sponsored approximately 200 partnerships with institutions in 70 developing countries. Over the years, more than 3,000 total degrees have been awarded across the nine separate CRSPs and over 85% of host country trainees returned to a developing country after graduation. Some of these graduates have gone on to leadership positions in their countries or in international institutions and are able to influence policy choices related to agriculture and the U.S. perspective. For example:

Dr. Robert Mabagala (Michigan State University) - He was the first plant breeder in Tanzania and is now a Professor of Crop Science at Sokoine University of Agriculture. Dr. Mabagala is a founding member of the Tanzanian Association of Phytopathologists and the Tanzania Society for Microbiology. Currently, he is editor of the Tanzania Journal of Agriculture Sciences and the African Journal of Plant Protection.

Denis Kyetere (Ohio State University) – He was made Director General of Ugandan National Agricultural Research Organization in 2007.

Irene Tanzo (Pennsylvania State University) – She is currently the Gender Specialist at the PhilRice institute in the Philippines.

Safiatou Dem (Virginia Polytechnic Institute and State University) – She has become the director of the Environmental Toxicology and Quality Assurance Laboratory in Mali.

Key Development Areas for Agriculture—Shaping the Future.

In order to shape a future, food-secure and stable world, USAID and the university community must work together to craft a longer-term vision of growth, with integrated investments that incorporate research, human and institutional capacity building, infrastructure, sound policy, markets and governance. Such a future would be built around a vision of a new, “second” green revolution with three key pillars.

Capacity Building

Building human and institutional capacity

is fundamental to any advancement in productivity and growth in agriculture in the developing world and the U.S.

should work to create the in-country capacity to solve future agriculture problems and foster national development. Indeed, studies have illustrated that for every additional year increase in tertiary education in Africa, GDP per capita increases by 12.2 percent, potentially boosting incomes by 3 percent after five years. Although the U.S. invested in capacity building

The Example of Brazil

In 1963, the government made a political decision to build a human capital base for a modern agriculture. With USAID financing, four American land-grant universities spent a decade assisting four Brazilian universities in strengthening B.Sc.-level training in Brazil, followed by another four years of support for postgraduate education (Sanders, et al 1989). In 1972, the government established EMBRAPA (Brazilian National Agricultural Research Corporation) to coordinate its national research program. EMBRAPA launched a massive human capital program and spent 20 percent of its total budget from 1974 to 1982 on training programs in Brazil and abroad. In fact, in the late 1970s and 1980s, EMBRAPA had an average of more than 300 researchers enrolled each year in postgraduate training programs. Today, one-third of EMBRAPA scientists have a Ph.D. degree, half have an M.Sc. degree, and the balance has a B.Sc. (Beinetma, et al, 1998).

programs 30 years ago, those U.S.-trained scientists are retiring and we are faced with a loss of a generation of African scientific leaders. This leaves the continent with a critical lack of capacity to teach the next generation—across Africa and across disciplines, on average, only 70% of the required faculty are at post. *The U.S. university community can develop partnerships with developing country institutions to address faculty development, training, curriculum quality and innovation, research capacity and infrastructure development, as well as programs to support technology transfer and outreach to close the gap between production capacity and potential.*

Value Chain Development.

To address food

demand, it is clear that the world will need to increase agricultural productivity via a “second green revolution.” While most of the recent gains in agricultural production in Africa have resulted from expanding the area of land cultivated and in some cases intensifying the use of inputs, this trend is not sustainable. Thus, it is critical to generate new technologies and management approaches to boost productive output as well as minimize post-harvest losses—pre and post harvest losses can reach more than 50% among some commodities. *The U.S. university community should enter into partnerships with developing country institutions in research and development focused on such areas as maintaining successful varieties of strategic crops, continuing traditional crop breeding programs, developing new technologies to raise yield ceilings, including the evolution of seeds more resistant to climatic stresses as well as plants that can adapt to depleted*

soils, advocating for sustainable water and soil management practices, as well as seeking new post-harvest loss reduction approaches. The U.S. should also look at the current food crisis as an opportunity to support the development of local and regional value-added foods and markets—markets not dependent on increasingly expensive fertilizer inputs or fuel for transportation. By advocating a “local agricultural renaissance” of sorts, the U.S. university community can work with partner institutions in the local communities to lure some of the world’s urban poor back into the rural areas as productive citizens.

Economic and Community Development.

This new and improved “second” green revolution will also result in hunger and poverty alleviation by making food systems locally self-sustaining, encouraging small business development, and enhancing children’s educational opportunities. Studies of entrepreneurship in Africa point to the need to empower communities to create their own vision for the future, build regional markets, and launch youth workforce and business management training initiatives. *U.S. universities have a long history of success in such community-based programs in the U.S. via 150 years of the land grant tradition of integrating research, teaching, and extension. Universities can partner with developing country institutions to adapt successful programs to local community needs.*

BEANS FOR HEALTH ALLIANCE—An Example of a GDAA

The Beans for Health Alliance (BHA) is a USAID-sponsored Global Development Alliance (GDA). Established in May, 2003, with an award of \$1,500,000 from USAID, the BHA has leveraged 2.5 million in private industry and university resources. This successful GDA is working toward achieving the U.S. government’s foreign assistance and development goals by: 1) identifying and promoting bean-based solutions to chronic health and nutritional concerns in both developed and developing countries; and 2) increasing bean/pulse consumption and expanding market opportunities for the global dry bean industry.

The BHA was created to address persistent widespread child malnutrition and increasing incidences of chronic diseases (cancers, heart disease), obesity and Type II diabetes, and HIV/AIDS. Factors contributing to this health crisis include major dietary shifts away from nutritious traditional staple foods to less healthy convenience foods. In developing countries, these dietary changes are attributable in part to demographic shifts from rural to more urban populations, increased disposable incomes, and greater access to food options which are frequently not health promoting. The BHA approach is based on mounting scientific evidence which indicates that eating beans and related pulses significantly contribute to improved health.

The BHA approach is a concerted and coordinated effort, involving multiple stakeholder groups in the bean and cowpea value chains. It began with six charter members including the American Dry Bean Board (ADBB), the National Dry Bean Council (NDBC), Bush Brothers and Company, H.J. Heinz Company, the Bean/Cowpea Collaborative Research Support Program (CRSP), and World Vision International (WVI). As of 2006, the BHA has grown to include over 70 member organizations and numerous private individual memberships.

The Management Office for the Bean/Cowpea Collaborative Research Support Program (CRSP), at Michigan State University (MSU) was contracted by the BHA to administer the Bean Health Research Program. This office, under the direction of Dr. Irvin Widders, has extensive experience in managing a multi-disciplinary USAID-supported research and training program of international scope involving more than 35 institutions that focuses on beans and cowpeas.

To date, the BHA has completed the following activities in accord with its mission.

- Funding clinical research to determine the health promoting attributes of beans and related pulses. The research focuses on populations in developed and developing countries which rely on beans for daily nourishment.
- Educating public health officials and hunger professionals around the world about the health benefits of beans.
- Participating in key conferences to promote research findings on the nutritional benefits of beans.
- Sponsoring international conferences to bring together world bean nutrition experts.
- Supporting a website that serves as the primary resource for bean-related research (www.beansforhealth.org).

Partnerships—Bringing It All Together and Making It Work

To address poverty and hunger in an agriculture development strategy in the context of greater private sector involvement, partnerships will be key to success. It is time to expand the current system to explicitly engage new players in the global food system. Building on the 2004 USAID strategy, “Linking Producers to Markets,” USAID and the university community should explore how best to work with all sectors to foster pro-poor outcomes that increase agriculture productivity as well as contribute to environmental goals such as biodiversity preservation, natural resources management and conservation, carbon sequestration and water and energy-saving options. Moreover, traditional bilateral partnerships may not provide the best approaches to today’s complex challenges—a more regional focus or one based on agroecosystems may offer the most creative and effective solutions.

BIFAD and the university community are prepared to work with USAID towards an integrated, comprehensive framework for action. Some possible approaches for longer-term strategic consideration include:

- A Global Development Alliance for Agriculture. This approach would build on the success of USAID’s GDA program to date with focused emphasis on agriculture. Known as the GDAA, the program would seek to partner U.S. universities with a range of private sector and other partners for agriculture programs that emphasized productivity growth.
- Regional Clusters for Food, Agriculture, and Nutrition (FANs). This approach would support the development of several regional consortia of U.S. universities partnered with developing country institutions and international organizations. Each regional consortium would adopt a multi-tiered “cluster” approach, with clusters comprised of experts on technology development, agroecosystems, and socio-economic areas. The clusters would interact with a leadership team responsible for developing regional assessments, research, training and technology dissemination plans.
- USAID Strengthening Grants Program. This concept would be modeled after the USAID effort launched over 30 years ago to strengthen U.S. academic institutions and their technical capabilities, especially in agriculture, through cooperative assistance programs. The grants program would expand university to university linkages, build capacity and overseas universities to address critical international development needs, strengthen US research leadership, develop and enhance technology adaptation, and establish a network of Centers of Excellence for Technology Adaptation as platforms for institution to institution development.

Secondly, several existing programs could be augmented or modified relatively quickly:

- The current U.S./Africa Higher Education Initiative is a step in the right direction to building capacity and linkages needed for rural and economic growth on the continent. However, the initiative is limited by its relatively low funding level.
- The Collaborative Research Support Program (CRSP) is an excellent model for building capacity in research. USAID might want to consider creating a CRSP specifically focused on Technology Transfer to work with the existing CRSPs in their effort to extend the research findings to the rural and farming communities.

Finally, to realize the potential of these new programs, new U.S. government approaches should be considered:

- Ag Czar at USAID. This Ag Czar would oversee a structural reorganization within USAID with the goal of developing functional capacity and integrated programming, and perhaps the creation of a Food, Agriculture and Nutrition Bureau; USAID may want to convene, in consultation with BIFAD, a “Blue Ribbon” Committee to oversee and advise.
- Global Agriculture Science and Technology Initiative. This interagency initiative would be led by the Office of Science and Technology Policy and would

elevate the issue to a foreign policy priority. Key strategic partners would be identified for a focused U.S. government effort that brings the resources of all the relevant U.S. government R&D agencies to bear—USDA, NSF, NIH, Energy, EPA, NOAA, etc. This interagency initiative would lead to increased visibility for agriculture in the national security and S&T agenda.

BIFAD and the university community are ready to commit to action and the Conference of Deans will continue to serve as a “Task Force” to keep the energy and focus on the effort. To address the structural roots of the current crisis, the time to act is now. The projections for population growth will require a doubling of the world food supply by 2025. The productivity improvement challenge is enormous.

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Conference of Deans Attendees

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