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# FISCAL YEAR 2007 TITLE XII REPORT TO CONGRESS

**April 2009**

This report is submitted to Congress pursuant to Section 300 of the Foreign Assistance Act of 1961, as amended by the Famine Prevention and Freedom from Hunger Improvement Act of 2000. It was prepared by Lorenzo G. Wilson, Susan J. Thompson, and John R. Bower, Office of Agriculture, Bureau of Economic Growth, Agriculture and Trade, USAID.



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## EXECUTIVE SUMMARY

This report summarizes the implementation of Title XII of the Foreign Assistance Act by the U.S. Agency for International Development (USAID) in fiscal year (FY) 2007. The main body of the report highlights the Title XII activities of USAID and its Title XII partners, and describes the programs and activities that will be conducted during the next five years. The report also summarizes the activities of the Board for International Food and Agricultural Development (BIFAD) and its views on the programs conducted under Title XII. The report annexes list the U.S. universities that participated in the Collaborative Research Support Programs (CRSPs) and the countries where USAID centrally funded Title XII programs were active.

Title XII programs contribute to the Economic Growth objective under the U.S. Foreign Assistance Framework through development of the agriculture sector. In FY 2007, approximately \$545.6 million was programmed in agriculture through six accounts: Development Assistance, Economic Support Funds, Support for East European Democracy Act of 1989, Freedom Support Act, Public Law 480-Title II, and Public Law 480-Title V. Eighty-eight percent of USAID's agriculture program funds were allocated to the regional bureaus and missions, and the remaining funds were allocated to USAID's Bureau for Economic Growth, Agriculture and Trade (EGAT), and Bureau for Democracy, Conflict and Humanitarian Assistance.

EGAT programmed approximately \$62.5 million in agricultural activities, the majority of which was in agricultural research through the CRSPs, the Consultative Group on International Agricultural Research (CGIAR), and a biotechnology research program. In FY 2007, there were 13 active CRSPs, 4 of which were new. Sixty-two U.S. universities participated in the CRSPs, partnering with over 300 institutions in 64 countries. The CGIAR collaborated with over 25 U.S. research institutions in 50 projects. Other university programs focused on a wide range of topics, including food security, education, biotechnology, innovation, capacity building, human health, biodiversity, resource management and agribusiness development.

In FY 2007, 572 students received degrees from U.S. universities under the Title XII program. USAID supported three pilot long-term training programs and activities focusing on institutional capacity building, policy reform, and farmer and agribusiness training. U.S. universities and their public and private partners brought significant financial as well as human and physical resources to the Title XII program. Over 60 percent of the U.S. universities that reported Title XII activities identified at least one partnership investment commitment.

In FY 2006, USAID completed an analysis and priority-setting exercise to identify EGAT's research priorities. As a result, several CRSPs were re-designed. Implementation of the 2006 recommendations will be completed in FY 2009 with the awarding of two new CRSPs. EGAT plans to begin a new five-year review of its research priorities and the CRSPs to inform FY 2011-2015 investments.

USAID is addressing the global food crisis by increasing short-term investment as well as developing a longer-term strategy for food security. USAID will rebuild its corps of agriculture officers by hiring, training and placing junior officers in the field as part of the Development

Leadership Initiative. USAID will also support the Africa-U.S. Higher Education Initiative, funding 20 U.S. university planning grants for the development of long-term partnerships that build the capacity of African universities. This initiative focuses on African institutional needs such as faculty and curriculum development, and teaching and research facility upgrades. In 2009, EGAT will review long-term training in response to BIFAD's call for increased attention and piloting of new approaches. At the same time, USAID has adapted a new policy on human and institutional capacity development to ensure that USAID is giving sufficient attention to the importance of building a foundation for development in all sectors.

BIFAD's activities in FY 2007 focused on gaining a better understanding of USAID mandates to implement transformational development, the new Foreign Assistance Framework, and the role that universities can play in the USG's interagency process. BIFAD held three meetings that focused on the role of universities in African development, developing partnerships to initiate a Green Revolution, and challenges facing U.S. foreign development assistance. BIFAD integrated these themes into its planning for its Conference of Deans in 2008, which brought together leaders in international agriculture from higher education institutions across the United States.

## INTRODUCTION

Title XII of the Foreign Assistance Act of 1961, as amended (hereafter referred to as the Act), calls upon the United States to mobilize the capacities of U.S. land-grant and other eligible universities and their public and private sector partners to achieve the mutual goals of ensuring food security, human health, agricultural growth, trade expansion, and the wise and sustainable use of natural resources. Areas where U.S. universities and their partners can help achieve these goals include global research on problems affecting food, agriculture, forestry, and fisheries; improving human capacity and institutional resource development for the global application of agricultural and related environment sciences; agricultural development and trade research and extension services to support the entry of rural industries into world markets; and providing for the application of agricultural sciences to solve food, health, nutrition, rural income and environmental problems, especially in low-income, food-deficit countries. Title XII also established the Board for International Food and Agricultural Development (BIFAD) to assist in the administration of the programs authorized by Title XII and to advise the Administrator on any and all issues as requested.

Section 300 of the Act calls for the President to transmit a report annually to Congress that:

- (I) details the activities carried out pursuant to Title XII during the preceding fiscal year;
- (II) contains a projection of programs and activities to be conducted during the subsequent five fiscal years;
- (III) contains a summary of the activities of BIFAD established pursuant to Section 298 of Title XII; and
- (IV) may include the separate views of BIFAD with respect to any aspect of the programs conducted or proposed to be conducted under Title XII.

This report addresses each of these topics and was prepared in consultation with BIFAD as stipulated in Section 298(e) of the Act.

## SECTION I: FY 2007 TITLE XII ACTIVITIES

### Agriculture Program Area

The Agriculture Program Area, which falls under the Economic Growth objective of the Foreign Assistance Framework, draws upon Title XII's definition of agriculture to describe the breadth of USAID agricultural programs.<sup>1</sup> The programs not only address agricultural sector productivity issues (research and technology dissemination, resource management, agribusiness and producer organizations, markets and trade, finance, and emerging threats), but also recognize the importance of an improved enabling environment (agricultural institutions and policies) and the effect of high rural poverty (agricultural livelihoods) on sustained and broad-based economic growth.

In FY 2007, \$545.6 million was programmed in agriculture through six accounts: Development Assistance, Economic Support Funds, Support for East European Democracy Act of 1989, Freedom Support Act, Public Law 480-Title II (Food for Peace) and Public Law 480-Title V (John Ogonowski Farmer-to-Farmer Program) (Table 1).

**Table 1.** USAID Agriculture Program Allocations by Bureau in FY 2007

Bureau	Account					TOTAL (\$ thousand)
	Development Assistance (\$ thousand)	Economic Support Funds (\$ thousand)	Support for East European Democracy (\$ thousand)	Freedom Support Act (\$ thousand)	PL480 Development <sup>1</sup> (\$ thousand)	
Africa	120,371	200	0	0	75,150	<b>195,721</b>
Asia and the Near East	39,575	155,169	0	0	1,594	<b>196,338</b>
Europe & Eurasia	0	0	12,208	24,133	0	<b>36,341</b>
Latin America & the Caribbean	23,222	2,200	0	0	28,419	<b>53,841</b>
Economic Growth, Agriculture and Trade	52,378	0	0	0	10,100 <sup>2</sup>	<b>62,478</b>
Democracy, Conflict & Humanitarian Assistance	891	0	0	0	0	<b>891</b>
<b>TOTAL</b>	<b>236,437</b>	<b>157,569</b>	<b>12,208</b>	<b>24,133</b>	<b>115,263</b>	<b>545,610</b>

Source: Foreign Assistance Coordination and Tracking System (FACTS), 9 Feb 2009  
 1-“ PL 480 Development” includes Title II (Food for Peace) and Title V (John Ogonowski Farmer-to-Farmer Program).  
 2- In FACTS, Title V is allocated to Food for Peace under the Humanitarian Assistance objective of the Foreign Assistance Framework. Food for Peace then transfers this allocation to EGAT to implement the Farmer-to-Farmer program.

<sup>1</sup> Food, feed and fiber production, including forestry, wildlife, fisheries, aquaculture and floriculture; and its relationships to natural resources, processing, marketing, distribution, utilization, including nutrition, and trade.



Eighty-eight percent of USAID agriculture program funds were allocated to the regional bureaus and missions, with the Africa, and Asia and the Near East bureaus and missions receiving 72 percent. The remaining 12 percent of the funds were allocated to the Bureau for Economic Growth, Agriculture and Trade (EGAT) and the Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA).

## **USAID Title XII Programs<sup>2</sup>**

Most USAID Title XII programs are managed by the EGAT Bureau's Offices of Agriculture, Natural Resources Management, Environment and Science Policy, and Education. EGAT mobilizes the U.S. universities, their public and private-sector partners, and the international agricultural research centers to undertake research on priority problems, disseminate findings, strengthen human and institutional capacity, and pilot innovations for application by geographic bureaus, field missions, other donors, and developing-country institutions.

This report covers those Title XII U.S. universities that have a grant or cooperative agreement with USAID. Nearly 100 USAID-funded Title XII activities were reported in FY 2007 by over two dozen U.S. universities.

Title XII programs support a number of USAID priorities under the Presidential Initiative to End Hunger in Africa (IEHA), the Collaborative Research Support Programs (CRSPs) and other USAID-supported research and development programs and projects. The Title XII programs address a wide range of topics. Examples of accomplishments during FY 2007 in several of these topic areas include the following:

### ***Biotechnology***

- The Cornell University **Agricultural Biotechnology Support Program (ABSP) II**, which funds public-sector research and development of disease- and pest-resistant bioengineered food crops in Africa and South Asia, made significant advances in introducing disease-resistant genes into East African Highland bananas; planted the first field test of a bioengineered crop in Uganda (Black sigatoka resistant transgenic banana) in a confined field trial; transferred tomato yellow leaf curl virus-resistant tomato varieties to the World Vegetable Center; prepared regulatory dossiers for insect-resistant Bt eggplant in India and the Philippines; and prepared regulatory dossiers for virus-resistant papaya in the Philippines.

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<sup>2</sup> In preparing the FY 2007 Title XII Report to Congress, the Office of Agriculture (EGAT/AG) solicited inputs from Title XII universities on all their USAID-funded activities. Universities responding included Clemson, Cornell, Florida, Florida A&M, Georgia, Illinois, Iowa State, Kansas State, Kentucky, Lincoln, Louisiana State, Michigan State, Montana State, Nebraska, North Carolina State, Ohio State, Pennsylvania State, Purdue, Rutgers, Texas A&M, Tuskegee, Virginia Tech, Washington State, and Wisconsin.

### *Capacity building*

- The **Global Livestock CRSP** supported training programs at policy, market/trader and producer/community levels to build the capacity of users to access, interpret and use market information. Approximately 5,687 individuals participated in training at the national, regional, and local levels.
- Also under the **Global Livestock CRSP**, 184 community leaders and public officials in Tanzania received Avian Flu School training on poultry vaccination for Newcastle disease and the benefits of improving poultry health. Training on the recognition and early reporting of avian flu has fostered new strategies for veterinary extension, including tactics for increasing poultry vaccination, thereby improving poultry production.

### *Human health*

- The **Peanut CRSP** found that aflatoxin contamination of foods in Africa has major consequences beyond the prevention of trade; a study in Ghana showed that HIV+ persons exposed to dietary aflatoxins have synergistic, adverse modifications to their immune status, and another study found that people with high levels of exposure to aflatoxin are more likely to have active malaria infections.

### *Agribusiness*

- Under the **Partnership for Food Industry Development (PFID)-Natural Products**, eight tons of organic hibiscus were supplied by PFID-assisted women's groups in Senegal and developed into an organic iced tea branded "Adina for Life", which was featured at the International Food Technology Food Show in Chicago. The project also assisted 55 farmer associations comprising 6,000 hibiscus growers in Senegal to obtain organic certification for 350 hectares of land. This is the first time hibiscus has achieved organic certification in West Africa.

### *Applied research and technology*

- Small red bean cultivars developed and released in Central America by the **Bean/Cowpea CRSP** have become the most popular improved varieties in Costa Rica, El Salvador, Honduras and Nicaragua, with more than 80,000 farmers planting certified seed of the improved cultivars during the 2006-2007 growing season.
- Building on previous USAID-supported efforts through the **Food Security III Cooperative Agreement**, the Food Security Group promoted regional agricultural trade in West Africa by distributing up-to-date market data to farmers and traders in remote areas using solar-powered laptops and radio broadcasts. Radio stations under contract with the project routinely broadcast the market reports to some 7.5 million listeners.

- Under the **Soil Management CRSP**, field tests and demonstration plots on paddy rice in Thailand showed the benefits of site-specific nutrient-management technology, which reduced the amount of chemical fertilizer used by irrigated-rice farmers and thus the cost of production.

### *Biodiversity*

- The **Sustainable Agriculture and Natural Resource Management (SANREM) CRSP** has helped develop and test a market-driven approach in Zambia called the **Community Markets for Conservation (COMACO)** to increase biodiversity conservation by reducing poaching, agricultural incursion into protected areas, and overexploitation of fishery resources. Preliminary data show that COMACO market incentives foster sustainable agricultural practices and the development of effective natural resource management strategies.

### *Policy studies*

- The **BASIS Assets and Market Access CRSP** analyzed a series of policy reforms in Brazil to test the determinants of poverty and see what policies may have been responsible for a decline in rural poverty in recent years. This included analysis of the National Program for Land Credit, which piloted innovations in land tenure reform and poverty alleviation. Research findings showed a significant increase in incomes for participating households and will be used to inform future government policy.

## **Title XII Leveraging**

U.S. universities and their public and private partners bring significant financial as well as personnel and physical resources to the Title XII program. These resources often leverage investments from other government and private-sector sources, increasing program impacts and providing additional returns on U.S. Government development investments. In FY 2007, over 60 percent of the U.S. universities that reported Title XII activities identified at least one partnership investment commitment. Examples of leveraging include the following:

- The **Bean/Cowpea CRSP**, managed by Michigan State University and its eleven U.S. university collaborators, used USAID funding to leverage over \$14 million in investments, including \$11 million from the Bill and Melinda Gates Foundation, to develop new market opportunities, add value to food staples and their by-products, increase nutritional knowledge, develop nutritious food products, and facilitate the dissemination of pulse storage technologies in West Africa.
- The **Integrated Pest Management CRSP**, managed by Virginia Polytechnic Institute and State University and its seventeen U.S. university collaborators, leveraged over \$2 million in investments from U.S. universities (in-kind) as well as from U.S. and host-country private-sector partners to develop and implement approaches to integrated pest management that helped increase the standard of living and improve the environment in project countries.

- Texas A&M University, through its **Pastoral Engagement, Adaptation, and Capacity Enhancement (PEACE) Project** in Afghanistan, complemented USAID funding with \$307,866 of private investments to promote livestock-sector development. The project supported policy planning, pastoral land-tenure conflict resolution, and the introduction of new technologies to improve rangeland management, livestock production, and marketing, as well as putting in place a livestock surveillance system. The Afghan Department of Natural Resource Management is institutionalizing a **Livestock Early Warning System**, while the Department of Animal Health is helping to implement the **Near Infrared Nutritional Profiling System**. Together these two systems provide valuable early warning information on forage quantity and quality.
- Rutgers University's **Partnerships for Food Industry Development (PFID) - Natural Products** with Stellenbosch University in South Africa, Kwameh Nkrumah University of Science and Technology in Ghana, the University of Dakar in Senegal, the Science and Technology Institute in Rwanda, and the University of Zambia leveraged USAID funding and obtained \$292,000 in investments from host country partners.
- Florida A&M University invested \$215,037 in the **John Ogonowski Farmer-to-Farmer Program**, nearly matching USAID funding. This activity, which partners with South Africa's Western Cape Department of Agriculture, provided technical and business-skills training to previously disadvantaged emergent commercial agricultural enterprises, public/private agricultural technical agencies, public/private higher education agricultural institutions, and rural financial institutions.
- The USAID-supported **Afghan eQuality Alliances** program at Washington State University leveraged \$173,775 in U.S. private sector investments to improve the leadership and management of 19 Afghan higher education institutions, build the capacity to sustain eLearning centers for teaching and learning at five Kabul and four regional higher education institutions, upgrade curricula and courses, and support public policy and administration capacity building at Kabul University.

## **Title XII Research**

Title XII research activities are supported through the CRSPs, the CGIAR, and other research programs implemented by Title XII universities. While the CRSPs account for the highest percentage of Title XII program efforts in the Office of Agriculture, many other U.S. Title XII university partnership programs, funded by other Agency operating units, contribute to USAID's mission.

### ***Collaborative Research Support Programs***

Each CRSP is led by a U.S. Title XII university that subsequently engages other U.S. and international research and educational institutions through sub-grants. Each of the U.S. management entity (ME) universities and their U.S. sub-awardees provided 25 percent matching funds to the program. In FY 2007, 62 U.S. universities participated in the CRSPs (Annex Table

1), partnering with over 300 institutions in 64 countries (Annex Table 2). In FY 2007, there were nine ongoing CRSPs:

- Aquaculture, ME at Oregon State University (end date 30 September 2008);
- Bean/Cowpea, ME at Michigan State University (end date: 30 September 2007);
- Broadening Access and Strengthening Input Market Systems (BASIS), ME at the University of Wisconsin (end date 30 June 2007);
- Global Livestock, ME at the University of California, Davis (end date 30 September 2009);
- Integrated Pest Management (IPM), ME at Virginia Polytechnic Institute and State University (end date 30 September 2009);
- International Sorghum and Millet (INTSORMIL), ME at the University of Nebraska (end date 30 June 2007);
- Peanut (end date 30 October 2007), ME at the University of Georgia;
- Soil Management, ME at the University of Hawaii at Manoa (end date 30 September 2008); and
- Sustainable Agriculture and Natural Resources Management (SANREM), ME at Virginia Polytechnic Institute and State University (end date 29 September 2009).

During the year, four new CRSPs began implementation:

- Assets and Market Access (AMA) to the University of Wisconsin (end date 29 September 2011);
- Aquaculture & Fisheries (AquaFish) to Oregon State University (end date 29 September 2011);
- Peanut II to the University of Georgia (end date 30 July 2012); and
- Sorghum, Millet, and Other Grains (SMOG) to the University of Nebraska (end date 29 September 2011).

The new CRSPs build on the work and results of earlier collaborative research support programs. AMA is the second generation of the BASIS CRSP, AquaFish was preceded by the Aquaculture CRSP, Peanut II continues the work of the Peanut CRSP, and SMOG is a follow-on to the International Sorghum and Millet (INTSORMIL) CRSP. In each of the transitions from the predecessor to the new program, critical research and dissemination activities in the closing CRSP were identified and supported.

The FY 2007 CRSP portfolio supported research programs in the following areas:

- The **AMA CRSP** ([http://www.basis.wisc.edu/ama\\_crsp/](http://www.basis.wisc.edu/ama_crsp/)) conducts research to improve agricultural competitiveness and to increase resilience of the rural poor. Current research includes smallholder participation in agricultural value chains (Peru, Nicaragua, Indonesia and Guatemala); idiosyncratic risk and coping mechanisms (Ghana, Ethiopia and Bangladesh); weather insurance and price information (India); natural resource use as a pathway from poverty (Uganda and Malawi); and women's access to land (Liberia and Uganda). The CRSP is also undertaking pilot activities on area yield insurance for smallholders in Peru and a productive safety net using indexed insurance for pastoralists in northern Kenya. The AMA CRSP was designed as the natural evolution of the BASIS CRSP (described below), which ran from 1996 to 2007.
- The **Aquaculture CRSP's** (<http://pdacrsp.oregonstate.edu/>) goal is to enhance the development and sustainability of aquaculture production systems for improving food supplies and human nutrition on a long-term basis. During FY 2007, 18 U.S. universities plus institutions and other partners in 20 host countries addressed global constraints to the development of extensive to semi-intensive sustainable aquaculture systems. Activities during FY 2007 focused on the completion of on-going critical research, degree training programs, and outreach activities.
- The **AquaFish CRSP** (<http://aquafishcrsp.oregonstate.edu>) conducts applied research on critical aquaculture production constraints, disseminates best practices, and builds local capacity. This CRSP is developing more comprehensive, sustainable, ecologically and socially compatible, and economically viable aquaculture systems. In FY 2007, AquaFish undertook research and field testing on new technologies and management practices and provided long and short-term training to scientists, farmers and host country government agents.
- The **BASIS CRSP** ([http://www.basis.wisc.edu/basis\\_crsp/index.html](http://www.basis.wisc.edu/basis_crsp/index.html)) conducts research to improve the quality of life for the rural poor in the developing world. BASIS research has made significant contributions to understanding chronic poverty and its causes; the role of markets in the transforming post-Soviet economies; policy reforms that generate sustainable pathways out of poverty; the role of access to financial markets in long-term growth and household well-being; the design and impact of payment for environmental services schemes; the potential of credit bureaus to improve access to credit; and expanded options for effective land reform.
- The **Bean/Cowpea CRSP** (<http://www.isp.msu.edu/crsp/>) supports international research partnerships to increase the availability of beans and cowpeas. Participants from Latin America, the Caribbean, Africa and the U.S. work in collaborative projects concentrating on all aspects of food handling from improved production technologies or strategies through food processing and the development of value-added products especially for urban markets.

- The **Global Livestock CRSP** (<http://glcrsp.ucdavis.edu/>) undertakes research to strengthen the ability of institutions and individuals to manage risk related to livestock production, increase employment and incomes among livestock producers, and enhance the nutritional status of targeted populations. The program has helped reduce conflict among pastoral communities, and developed and disseminated methods to diversify producer assets and to link producers to markets, rural finance, and public service delivery.
- The **INTSORMIL CRSP** (<http://www.ianr.unl.edu/INTSORMIL/index.htm>) works on sorghum and millet, and other cereal grains such as tef in East Africa, finger millet in East and Southern Africa and fonio in West Africa. Early disciplinary research emphasized production and utilization problems in the developing world and collaboration between the U.S. sorghum research community and national programs in developing countries. As the program has evolved it has become more regionalized and has responded to USAID's request to add biotechnology components to the program. The follow-on to the INTSORMIL program (SMOG) is developing higher yielding food and feed quality sorghum and millet cultivars and hybrids with increased yields and resistance to abiotic and biotic stresses.
- The **IPM CRSP** ([http://www.oired.vt.edu/ipmcrsp/IPM\\_2008/draft\\_home.htm](http://www.oired.vt.edu/ipmcrsp/IPM_2008/draft_home.htm)) supports regional research programs in Africa, Asia, Eastern Europe, and Latin America to develop and promote the adoption of integrated pest management approaches that raise food quality and quantity and protect the environment. The IPM CRSP also supports research on global themes including invasive species, insect-transmitted viruses, impact assessment, knowledge management, plant disease and insect pest diagnostics. Developing host country scientific capacity is also a global activity.
- The **Peanut CRSP** (<http://168.29.148.65/home.cfm>) supports joint research, technology development and capacity development in eleven African and Latin American countries. The program addresses constraints to the peanut sector across the full value chain of this most important developing country legume. Production projects aim to exploit genetic and management options to increase the productivity and sustainability of peanuts, producer projects aim at increasing the value of peanuts and producers' access to markets, while consumer research is focused on increasing the nutrition and health benefits associated with consuming peanuts, with the intention of increasing demand. This program is a platform for aflatoxin research and mitigation across the full spectrum of foods subject to contamination. Efforts in this area focus on the connection between this toxin and public health, infectious diseases and nutrition. The Peanut II CRSP began on July 31, 2007, following the end of the Peanut CRSP.
- The **SANREM CRSP** (<http://www.oired.vt.edu/sanremcrsp/>) supports sustainable agriculture and natural resource management in developing countries by providing decision makers appropriate data, knowledge, tools, and methods of analysis; and by enhancing their capacity to make better decisions to improve livelihoods and the sustainability of natural resources. Program research uses a nested landscape systems approach that begins with field level systems and builds through farm, enterprise, and

watershed systems nested in broader ecological, governance and policy systems. Program activities develop, catalog and transfer technologies that generate income; enhance resource management; strengthen local institutions; and improve market access.

- The **Soil Management CRSP** (<http://tpss.hawaii.edu/sm-crsp/>) provides technical and administrative leadership in Africa, Asia and Latin America through research programs that include the Carbon Sequestration Project, which is assessing the potential of soil management technology for soil carbon sequestration and carbon trading in Mali, Senegal, and The Gambia.
- The **SMOG CRSP** (<http://intsormil.org/>) undertakes research in 20 countries on critical production constraints associated with sorghum, millet, and other grains, disseminates best practices, and builds local capacity. Research focuses on food and feed processing and marketing; improved, adapted cultivar development; crop protection management improvements; sustainable agronomic management practices for different agro-ecologic zones; and improving the policy environment to support increased participation of the private sector in the entire value chain.

#### *Other University Programs*

- The **Advancing Afghan Agriculture Alliance (A-4)** ([afghanistan.usaid.gov/en/Activity.4.aspx](http://afghanistan.usaid.gov/en/Activity.4.aspx)), implemented through a Global Development Alliance with Purdue University, provides technical assistance to the Ministry of Agriculture and Kabul University. The technical assistance supports curriculum reform at Kabul University, establishes and strengthens linkages between the university and related Ministries, strengthens the skills of professors, and strengthens agriculture extension and research activities of the Ministry of Agriculture.
- The **Agricultural Biotechnology Support Program (ABSP) II** ([www.absp2.cornell.edu](http://www.absp2.cornell.edu)) is a consortium of public and private-sector institutions that supports scientists, regulators, extension workers, farmers and the general public in developing countries to make informed decisions about agricultural biotechnology. ABSP II focuses on the safe and effective development and commercialization of bio-engineered crops as a complement to traditional and organic agricultural approaches. The project helps boost food security, economic growth, nutrition and environmental quality in East and West Africa, Indonesia, India, Bangladesh and the Philippines. The consortium is led by Cornell University and works collaboratively with the Program for Biosafety System and the South Asia Biosafety Program.
- Under the **Food Security III Cooperative Agreement** ([www.aec.msu.edu/fs2](http://www.aec.msu.edu/fs2)), Michigan State University's Food Security Group focuses on issues of food security, food policy, and general agricultural development, primarily in Africa. The program aims to strengthen the capacity of participating countries and USAID to analyze food security issues and formulate policies, institutional reforms, investment plans, and management processes that promote food security. Examples of topics analyzed include volatile world food and input prices, use of improved agricultural inputs, input market development,



local procurement of food aid, and national and regional staple food marketing. Building on previous USAID-supported efforts, the Food Security Group is promoting regional agricultural trade in West Africa by distributing up-to-date market data to farmers and traders in remote areas via radio broadcasts. Once market price information for grains, crops and livestock is entered into solar-powered laptops, the information is e-mailed by radio waves to regional offices, where the data are compiled. Radio stations under contract with the project routinely broadcast the market reports to some 7.5 million listeners, an enormous benefit to farmers, traders and consumers alike.

- The **Higher Education for Development (HED) Program** ([www.hedprogram.org](http://www.hedprogram.org)) supports the worldwide development goals of USAID primarily by coordinating the engagement of U.S. universities and colleges to address development challenges. HED does this by funding innovative partnerships that link the colleges and universities with institutions of higher learning in developing nations to design and implement solutions to development issues. It also holds roundtable discussions to engage the development community on development issues and publishes reports that highlight development news.
- The **Partnership for Food Industry Development (PFID)** is a joint university and food industry technical assistance program managed by the Office of Agriculture in the Bureau of Economic Growth Agriculture and Trade (EGAT). Project objectives support the USAID Agriculture Strategy strategic theme of "Mobilizing Science and Technology and Fostering Capacity for Innovation". Three partnerships support field operations that strengthen food industries in USAID host countries:
  - Michigan State University's **PFID-Fruits and Vegetables (F&V) Program** ([www.pfid.msu.edu/](http://www.pfid.msu.edu/)) collaborates with public and private partners to increase the competitiveness of small and medium-scale producers in local, regional, and international markets. PFID activities provide market-led strategies to increase competitiveness of small and medium-scale producers of fruits and vegetables. These efforts strengthen national food industries, promoting their competitive participation in the global trading system, leading to enhanced economic growth. PFID activities also expand the knowledge of trade practices, regulations, and standards around the world; encourage the identification of locations for processing and manufacturing operations in developing countries; and assist in opening markets for American products.
  - Louisiana State University's **PFID-Meat, Seafood and Poultry (MS&P) Program** ([www.lsuagcenter.com/en/administration/about\\_us/chancellors\\_office/International+Programs/Projects/partnership+for+food+industry+development/phase\\_2/](http://www.lsuagcenter.com/en/administration/about_us/chancellors_office/International+Programs/Projects/partnership+for+food+industry+development/phase_2/)) provides market-led strategies to increase competitiveness of small and medium-scale producers of meat, seafood, and poultry. The ultimate aim is to strengthen food industries, promoting their competitive participation in the global trading system and leading to enhanced economic growth. Through this activity, the PFID also expands the knowledge of trade practices, regulations, and standards around

the world; encourages the identification of locations for processing and manufacturing operations in developing countries; and assists in opening markets for American products. The partnership, which is now in Phase II, is enhancing the food industry status in three target regions: Central America, Southern Africa and Eurasia/CIS. The objective builds on the global strategy established in the first phase concerning the post-harvest handling of animal-origin products. Phase II partners are the Cooperative League of the United States of America (CLUSA) in Nicaragua, University of Stellenbosch in South Africa, and International Institute for Food Safety and Quality in Ukraine.

- Rutgers University's **PFID-Natural Products (NP) Program** ([www.pfidnp.org](http://www.pfidnp.org)) supports the creation of economically and environmentally sustainable growth in sub-Saharan African communities through the development of the natural products and natural foods markets. Program objectives include to increase the number of natural plant product producers/farmers; develop products for domestic and international markets; increase the number of people employed in natural product sector; diversify the economy through new/improved natural plant products; increase economic growth within the natural product sector; increase and diversify family/farmers/production income; increase the number of sustainable natural plant products producers/companies; increase the number of science-based natural plant products; increase the use of science-guided marketing of natural plant products; and establish or improve natural plant products regulation systems. Core geographic areas include West Africa (Ghana and Senegal) and southern Africa (South Africa, Rwanda and Zambia).
- The **Pastoral Engagement, Adaptation, and Capacity Enhancement (PEACE) Project** ([afghanistan.usaid.gov/en/Activity.3.aspx](http://afghanistan.usaid.gov/en/Activity.3.aspx)) enhances the capability of Afghans to develop the livestock sector and rangeland management. Project components include a satellite-based early warning system that provides information on forage conditions for herders and rangeland decision makers; a livestock nutritional profiling system; a livestock information network and knowledge concerning the availability of market information; and pastoral conflict resolution and rural land tenure policy.
- The **Private and Community Forestry for Natural Resource Management Project** ([afghanistan.usaid.gov/en/Activity.68.aspx](http://afghanistan.usaid.gov/en/Activity.68.aspx)), implemented by the Cornell International Institute for Food, Agriculture and Development (CIIFAD) and the Global Partnership for Afghanistan (GPFA), establishes private agro-forestry businesses and promotes community-based natural resource and watershed management. Activities include market research, developing farmers' business skills to enable them to understand the range of marketable tree and wood products they can produce, and studying the associated profit margin for marketable tree and wood products.
- The **Sustaining Partnerships to Enhance Rural Enterprise and Agribusiness Development (SPREAD) Program** ([www.iaa.msu.edu/project\\_spread.html](http://www.iaa.msu.edu/project_spread.html)) is a partnership (Michigan State University, Texas A&M University and National University of Rwanda) and program aimed at strengthening value-chain development in Rwanda

with the goal of improving the lives of rural producers and their families. The primary value-chain focus is on specialty coffee for export to the United States, Europe, Japan and other major markets. An additional value-chain focus of the program is horticulture exports.

### *Consultative Group on International Agricultural Research*

The Consultative Group on International Agricultural Research (CGIAR) is a global alliance for agricultural and natural resources research, generating technology and policy to serve the needs of smallholder farm, pastoral, forest-dwelling and fishing families in the developing world. The CGIAR brings the best agricultural and environmental science to bear on solving problems relating to food security, environmental conservation and climate change. Poor consumers are also targeted beneficiaries through increased food availability, nutritional quality and affordability and through improved environmental services such as access to clean water.

The United States helped found the CGIAR and has been supporting its programs and centers for over 35 years. USAID contributes to the CGIAR through funding for longer-term research from EGAT, as well as bilateral and regional project support from USAID missions and bureaus. In addition, hundreds of U.S. citizens occupy leadership, governance and research positions in the CGIAR system, contributing valuable knowledge and expertise to the search for solutions to problems faced by smallholders engaged in livelihoods related to farming, pastoral systems, fishing, and forest management.

From the earliest days of the Green Revolution, the CGIAR Centers have maintained close ties with U.S. universities, and these relationships have been critical to the success of CGIAR research. Currently, each center allocates eight percent of its annual USAID institutional core funding for collaboration with the U.S. research community; in FY 2007, this resulted in 50 projects with more than 25 U.S. research institutions.

Highlights of a few CGIAR activities in FY 2007 include the following:

- The International Maize and Wheat Improvement Center (CIMMYT) and International Center for Agricultural Research in the Dry Areas (ICARDA) collaborated with the U.S. Department of Agriculture's Agricultural Research Service, the Food and Agriculture Organization of the United Nations, and Cornell University on the **Global Rust Initiative** (GRI) to fight the spread of wheat stem rust, a disease that devastates wheat yields. In the last fifty years, no wheat rust epidemics occurred thanks to resistance bred into Green Revolution wheat varieties bred by Nobel Laureate Dr. Norman Borlaug. However, in 1999, a new and more virulent strain of the fungus that causes stem rust was discovered in Uganda (the strain is known as Ug99). The disease has spread throughout East Africa, and by 2007 had crossed the Red Sea and was reported in Yemen and western Iran, threatening major wheat producing areas in North Africa, Iraq, Bangladesh, India, Pakistan, and Nepal (the last four countries are considered the breadbasket of South Asia). The GRI seeks to systematically reduce the world's vulnerability to stem rust race Ug99 by the replacement of susceptible varieties with durably resistant alternatives on a global scale.

- The International Rice Research Institute (IRRI) is working with a consortium of six U.S. universities on genes and mechanisms controlling tolerance for biotic and abiotic stresses in rice, including drought-tolerance and disease-tolerance as well as submergence tolerance for flooded rice. Breakthroughs in these areas will allow farmers to gain greater yields even under unfavorable conditions and will be especially important in adaptation to climate change in rice-growing areas.
- Global climate change poses an ominous threat to food security and rural livelihoods in the developing world. The CGIAR is responding to the threats of climate change by building on the foundation of decades of research targeted to help poor farmers cope with weather variability and improve yields on marginal lands. Projects have included development of drought- and heat-tolerant varieties of staple crops and improved land- and water-management techniques. Beyond crop agriculture, the Center for International Forestry Research (CIFOR) has taken a leadership role in advancing the global discussion on how best to reduce greenhouse gas emissions from deforestation, from which 20 percent of global emissions arise each year. CIFOR makes its research available to policy makers to inform the global policy debate. At the same time, CIFOR focuses on community based forestry to assist forest communities in protecting and benefiting from their local forest resources.
- Researchers at CIMMYT, in collaboration with those at the Kenyan Agricultural Research Institute (KARI), bred maize varieties resistant to the larger grain borer, a beetle that destroys stored maize.
- An International Food Policy Research Institute (IFPRI) study found that preventing undernutrition in children under 2 years old is more effective than treating children who are already moderately malnourished. Food-assistance nutrition programs usually target undernourished children up to age 5. Some NGOs have responded to the findings by targeting all children under 2 in poor communities.
- Through the CGIAR's **Gender & Diversity Program**, USAID supported leadership training for African women agricultural scientists who also received scientific training at Title XII universities. This training is part of the USAID/USDA Borlaug Women in Science Program.
- The **CGIAR Seed Initiative Program** supports the Comprehensive African Agricultural Development Program's agenda of agricultural sector-led economic growth. It does so by helping overcome critical constraints to effective and profitable seed system development in the region. In Africa, the inability to support significant commercial investment and inappropriate and inadequate policies are inhibiting the free movement of seeds between countries. Foundation seeds of publicly developed varieties are not profitably commercialized. This program facilitates development of the private sector-led seed industry by 1) working towards harmonized seed trade policies, 2) supporting national teams to develop business plans for the establishment of independent foundation seed enterprises (FSEs), and 3) training local entrepreneurs (individuals and groups) in

business management techniques. CGIAR research centers have partnered with Iowa State University's Seed Science Center to implement this activity.

## **Title XII Long-term Training**

Over the past several years, there has been a renewed interest at USAID in investing in education for agricultural development. In 2003, BIFAD recommended that USAID re-engage and lead U.S. efforts to help developing countries increase their capacities in agriculture and agribusiness. In FY 2007, 572 students received degrees from U.S. universities under the Title XII Program (Table 2).

**Table 2.** Numbers of Degrees Awarded Under the Title XII Program, FY 2007

<i>Degree</i>	<i>Number of degrees awarded</i>		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Bachelor's	79	84	<b>163</b>
Masters	73	79	<b>152</b>
Ph.D.	157	100	<b>257</b>
<b>Total</b>	<b>309</b>	<b>263</b>	<b>572</b>

Reflecting on BIFAD's call to increase leadership in long-term training, EGAT initiated several pilots on new approaches to increase the efficiency and impact of training, and to address the increasing difficulty of obtaining visas for international students. During FY 2007, USAID supported the following BIFAD pilot long-term training programs:

- In Zambia and Ghana, Michigan State University is piloting programs to overcome constraints including prolonged time away from home institutions, increased cost, and weak linkages between individual long-term training and capacity strengthening of the home institutions. The pilots are part of the **USAID Initiative for Long-Term Training and Capacity Building (UILTCB) Program** and are designed to provide opportunities for host-country organizations (public and private)<sup>3</sup> to build their research, production, trade policy, training, management and outreach capacity to promote greater agricultural-led growth and natural resources management. Further, the pilots lead to Master of Science degrees from U.S. universities for trainees from selected partner organizations, and include in-country short-term group training activities for long-term trainees and their home institution's leaders and staff. Seventeen trainees from Zambia and Ghana successfully completed the first academic year of M.S. degree courses at their respective

<sup>3</sup> Partner institutions include the Ministry of Agriculture, Pridam Ghana Ltd., the University of Development Studies, the Food Research Institute, Kwame Nkrumah University of Science and Technology in Ghana; and the Ministry of Agriculture, University of Zambia, and Zambia Forestry College in Zambia.

universities in the U.S. The training programs have progressed as planned for these trainees, and they are returning home.

- Ohio State University and Michigan State University collaborated on the **Long-term Training for Regional Agricultural Development in East Africa: Kenya, Tanzania and Uganda** pilot projects funded through USAID's Higher Education Partnerships for African Development (HEPAD). The goal of these projects is to strengthen the capacity of East African faculties of agriculture to improve smallholder productivity. Host country partner institutions included Egerton University in Kenya, Sokoine University of Agriculture in Tanzania, and Makerere University in Uganda. This activity has provided long-term graduate-degree training opportunities and short-term faculty-development opportunities at regional universities; strengthened linkages between private-sector agribusiness and faculties of agriculture; and built cross-regional synergies among faculties of agriculture.
- Under the **Linking Biotechnology/Bioengineering with Mali-based Agribusiness: Strengthening Food and Water Quality for Health, Safety, and Exports** pilot project, three long-term training models were tested by Montana State University in partnership with the University of St. Thomas (St. Paul, Minnesota) and the Institut d'Economie Rurale in Mali:
  - a model for USAID sponsored graduate education in sub-Saharan Africa;
  - a model for bottom-up development on the part of African national agricultural scientists and agricultural university professors; and
  - a model for listening and appreciating, not leading or directing on the part of U.S. collaborating scientists, engineers, business management experts and other professors.

## **Title XII Institutional Capacity Building and Policy Reform**

Research and higher-education institutions in many developing countries have seen their science and technology capacity dwindle. While there has been significant policy reform over the past decade, limited institutional reform has left many research and higher education institutions ill-equipped to work in the new policy environment. To ensure sustaining partnerships, it is vital to undertake institutional reform and build institutional capacity to shape and lead policy and research, as well as provide state-of-the-art agricultural education. Examples of activities in these areas during FY 2007 included the following:

- The **Agricultural Biotechnology Support Program II (ABSP II)**, managed by Cornell University, has partnered with the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), Kenya Agricultural Research Institute, and the Uganda National Agricultural Research Organization (NARO) to build African capacity to develop improved transformation protocols for East African Highland bananas, partner with developed-country institutions such as Leeds University and the Faculty of Life

Sciences of Copenhagen University (KUL) Denmark to test transgenic plants, construct biosafety containment facilities, negotiate the regulatory process to obtain approval for confined field testing, undertake cell culture and regeneration capacity, and conduct transformation work of banana varieties with marker genes and genes of interest.

- Ohio State University has partnered with Sokoine University in Tanzania and the University of Zambia to build these countries' capacity to identify new market opportunities for sorghum and millet; to develop improved sorghum and millet technologies; to undertake sorghum value chain analyses including seed value chains; and to strengthen long-term training (degree) programs.
- Pennsylvania State University, in partnership with the University of Guanajuato, is developing an educational program that trains extension professionals to assist small growers in Mexico under the **Technology Applications for Production Agriculture (TAPA) Project**. Focusing on high value horticultural crops, students are identifying the tools and techniques for successful extension services, including technology transfer to producers and processors in rural communities.

### **Title XII Outreach: Farmer & Agribusiness Training**

The importance of communicating scientific and technological discoveries is sometimes overlooked. Outreach programs, when effectively implemented, establish a two-way transfer of knowledge between researcher and end user. Without this transfer, the results of USAID research investments can not be scaled up. Farm field days and community-based activities connect Title XII researchers with end users. In FY 2007, nearly 51,000 technology transfer professionals, producers and students participated in short-term outreach programs, including farmer field days and professional workshops (Table 3).

**Table 3.** Numbers of Title XII Outreach Participants, FY 2007

	<i>Number of participants</i>		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Professionals	1,741	696	<b>2,437</b>
Producers	23,589	19,640	<b>43,229</b>
Others	3,753	1,554	<b>5,307</b>
<b>Total</b>	<b>29,083</b>	<b>21,890</b>	<b>50,973</b>

Two examples of outreach programs in FY 2007 include the following:

- The **Partnership for Food Industry Development-Meat, Seafood and Poultry** collaborated with institutions in Sub-Saharan Africa, South Asia, Central Asia, and Central America to provide training on the post-harvest handling of products of animal origin through Hazard Analysis and Critical Control Points (HACCP), market planning and policy reform to harmonize with international standards and to develop courses on game-meat processing, process control, and refrigeration.
- Purdue University, through the **Aquaculture CRSP**, provided training in pond management, fish feed, and fish-health management, and taught farmers record keeping and simple methods for assessing and evaluating costs and benefits.

### **Title XII in the Field**

USAID regional and bilateral field missions draw upon U.S. universities' expertise to conduct research, build human resource skills, strengthen policy and institutional capacity, disseminate the benefits of research and technology development, and undertake pilot programs to address critical agricultural constraints. In some cases, USAID Missions directly fund Title XII activities (Table 4).

**Table 4.** Mission Support for Title XII Agricultural Programs in FY 2007\*

<i>Mission</i>	<i>Universities supported</i>		
Bangladesh	Cornell University		
Ethiopia	Prairie View A&M University		
India	Cornell University		
Mali	University of California, Davis	University of Nebraska	Oregon State University
Mozambique	Michigan State		
Uganda	Auburn University	Cornell University	
Zambia	Michigan State University		
Africa Regional	Michigan State University		

\* As reported by Missions in the FY 2007 Foreign Assistance Coordination and Tracking System (FACTS)



Title XII projects are funded through central and field programs. They work to address agricultural constraints, build the human and institutional capacity in developing countries, increase the value of basic commodities and improve the livelihoods of rural communities.

### *Africa*

- The **ABSP II** and its partners in Mali, Ghana, Burkina Faso, Benin, Niger, and Togo conduct field training and research on the development of a disease-resistant tomato for West Africa, and build country capacity in biotechnology communications. To date, this project has identified the major tomato viruses responsible for production problems, developed biotechnology tools for detection and characterization of the viruses, developed efficient vector-independent germplasm screening tools, established regional capacity for screening germplasm for virus resistance and screening available virus-resistant materials for responses to viruses in West Africa, generated transgenic tomatoes with virus resistance, and identified local partners for regional field trials, seed increase and dissemination, and varietal release.
- The Texas A&M University **Designer Sorghum for Food, Feed and Fuel Project** in collaboration with the University of Pretoria in South Africa and the Golden Valley Research Station in Zambia is working to develop nutritious sorghum hybrids with high lysine and nutrient bio-availability for food and feed, and aims to optimize the grain for fermented food and fuel products.
- The **Community Based Management of Chia Lagoon Watershed Project** in Malawi, led by Washington State University and several municipal organization partners, is working to improve the livelihoods of households in the watershed through an integrated community-based approach involving sustained economic use of the watershed's natural resources. To date, the project has improved the conservation and management of soil, forest, and agricultural resources, and improved the livelihoods of rural communities through an integrated approach to better manage and sustain economic use of the watershed's natural resources.

### *Asia and the Near East*

- Clemson University, through the IPM CRSP, is collaborating with Bogor Agriculture University and Sam Ratulangi University in Indonesia, and with the University of Philippines Los Banos, University of Southern Mindanao, and the Philippine Rice Research Institute. Through the **Ecologically-based Participatory IPM for Southeast Asia Project**, the CRSP has reduced chemical pesticide use on vegetable and other high-value food crops in the region; farmer groups have established on-farm facilities for the production and distribution of biocontrol agents; university staff have led farmer training in IPM for vegetables; on-farm demonstration fields have compared IPM to conventional non-IPM production systems; and studies have investigated methods to control the cocoa pod borer, a serious pest of cocoa worldwide.

- Ohio State University, in collaboration with the Punjab Agricultural University and Food Processing Center under **The Next Generation: Developing India's Institutional Capacity to Confront Agriculture's 21<sup>st</sup> Century Challenges by Linking Grassroots Success to National Agricultural Policy Reform Project**, strengthened ties with the private sector through a Pilot Plant for Food, which provided internships for four individuals at the Ohio State Food Industry Center and technical assistance to food industries in the Punjab.
- Iowa State University partnered with the University of Agricultural Sciences in Bangalore, India in an innovative action-oriented research program for agricultural technology transfer in village communities. The partners researched new pragmatic approaches for sustainable rural development, building participatory-methods capacity to identify alternative production and marketing models adaptable to village communities. The partnership also strengthened the capacity of rural women to identify technologies that can increase the value of locally produced agricultural and horticultural products.
- The **University of Kentucky Partnership Project in Indonesia**, which involves a strategic partnership between the University of Kentucky and three Indonesian universities (Brawijaya University, University of Lampung, and Syiah Kuala University) facilitated short-term visits between Indonesian and U.S. administrators and faculty members to share their experiences in research, education, and outreach.
- Purdue University's **Advancing Afghan Agriculture Alliance Program** focused on Educational Capacity Building in partnership with Mercy Corps, Catholic Relief Services, International Foundation of Hope, Joint Development Associates, and five universities (Kabul, Balkh, Great, Nangarhar, Kandahar) to build alliances with U.S. universities (Cornell, Kansas State, UC Davis and Texas A&M), initiate farm development at Kabul University, and begin junior faculty training (MS training at Bangalore University in India and short-term training at Purdue).

### *Europe and Eurasia*

- The University of Maryland Regional Distance Learning Center at Stavropol State Agrarian University in the Russian Federation established an internet-based distance learning center in southern Russia where access to technology and the Internet is highly varied to help meet the continuing education needs of veterinarians in the region. The Center is also developing a certificate program in business management, marketing, and productivity for farmers and has upgraded Internet infrastructure and established a Distance Learning Consortium with partner institutions. University of Maryland faculty conducted train-the-trainer sessions on distance education technology with Stavropol State Agrarian University faculty. Nearly 350 people participated in veterinary workshops for improved food and animal health and mitigation of animal-borne diseases.
- The **Partnership for Food Industry Development-Meat, Seafood and Poultry** has trained Ukraine, Moldova, Georgia, and Azerbaijan partner-institution professionals in

improving the post-harvest handling of animal products with an emphasis on food safety and quality.

### *Latin America and the Caribbean*

- The Cornell University's **Decision Support of Ruminant Livestock Systems in the Gulf Region of Mexico Project**, in partnership with Universidad Autónoma de Yucatán, Universidad Veracruzana, and INIFAP-Veracruz, is working to increase the capacity of decision makers to assess technology, markets and policy for improving the productivity and profitability of the ruminant livestock industry and increase rural incomes in the Gulf region. This project strengthened the capacity of participants to address critical development constraints in ruminant livestock systems. Learning tools and training were provided to partner institutions, a cadre of skilled systems-oriented researchers and extensionists were trained, and the results of livestock research were disseminated.
- The University of Florida and the State University of Haiti's Faculté d'Agronomie et de Médecine Vétérinaire (FAMV) partnered in the **Delivering High-Quality Academic Programming in Agribusiness Program** to collaborate with various private sector agribusiness firms to develop an improved agribusiness curriculum for FAMV.
- The University of Wisconsin-Madison, through its **Mexican-U.S. Dairyland Partnership Between Queretaro and Wisconsin Project**, is providing dairy training, extension support for economic development and trade, and working to increase Mexican capacity in dairy research, training and extension.

## **SECTION II: PROGRAMS AND ACTIVITIES DURING THE NEXT FIVE YEARS**

### **BIFAD to Strengthen USAID and University Partnerships, and Launch a Conference of Deans**

In FY 2007, BIFAD recognized the critical need to mobilize the scientific expertise of the U.S. academic community to address ending world hunger and preventing famine, U.S. priorities with substantive national security implications. To elevate the strategic advice to the Administrator and provide greater mobilization of the U.S. land-grant and university community, BIFAD and USAID propose to jointly develop an action plan to broaden and deepen the engagement of more universities and their public and private sector partners in their international food and agricultural development discussions with USAID. The first step proposed is a study on engaging the Title XII community and the second step will be to convene a series of Conferences of Deans (CoDs) over the next 3-5 years. The CoDs will bring together leaders in international agriculture from higher education institutions across the United States to think strategically about the role of Title XII universities as partners to the U.S. government in a new era of global development. The CoDs will facilitate active engagement, as well as leadership and collaboration, between USAID and the university community. Goals of the CoDs are to strengthen working relations between the university community and USAID and to foster a re-invigorated and innovative dialog. Each CoD will produce a white paper containing recommendations to USAID. Proposed topics for CoDs include the role of universities and their private sector partners in implementing technology adaptation via capacity development for agriculture. The first CoD was held in 2008.

Recognizing that rapid, scaled-up action is needed to address the dramatic changes occurring in the international food and agricultural sector, BIFAD plans to focus its agenda so it can address broader strategic food security issues. Over the next five years, BIFAD will also work to strengthen communications with the USAID Administrator and revise the BIFAD Charter.

### **USAID to Award Two New CRSPs and Undertake a Five-year Research Priority-setting Exercise**

USAID completed an analysis and priority-setting exercise in FY 2006 to identify EGAT's research priorities. After consultations with BIFAD, USAID finalized its five-year research program, which is being phased in over a four-year period.

During the past two years, five new CRSP agreements were awarded: Assets and Market Access, Aquaculture & Fisheries, and Sorghum, Millet and Other Grains in FY 2006, and Dry Grain Pulses and Peanut II in FY 2007.

In FY 2008, USAID reviewed the IPM and SANREM CRSPs to assess their relevance, management and technical progress. Based on these reviews, USAID intends to extend these CRSPs through 30 September 2014.

In FY 2009 two new CRSPs are to be competed and awarded:

- The **Horticulture CRSP** will identify the production, post-harvest, food safety, marketing and enabling environment constraints to small and medium-sized enterprise participation in horticulture markets, and undertake research and apply the findings to address these constraints, upgrade and disseminate available technical knowledge and appropriate technology, and develop policy recommendations to link producers to markets. The CRSP will also partner to build local scientific and technical capacity, strengthen academic and technical training, and apply research to improve small holder production and competitiveness in high-valued horticultural products.
- The **Adapting Livestock Systems to Climate Change CRSP** will research the impacts of climate change on livestock systems targeting both the direct and indirect challenges to livestock, humans and the environment. The program will conduct research and capacity-building activities for improving animal and human health, making animal production and marketing more efficient, and reducing the negative environmental impacts of animal production and processing. The primary research focus, which is not restricted to any one species of livestock, will be problem-oriented (constraint-driven) research that has the potential to identify, disseminate and implement innovative interventions, new technologies, and management practices that mitigate the effects of climate change on livestock production systems and associated human, livestock and environmental health conditions.

Implementation of the FY 2006 recommendations will be completed with the awarding of these two CRSPs.

USAID has committed to undertake a review of its existing research program and to identify its research priorities every five years. It is expected that the next review of research priorities and the CRSP research portfolio will take place in FY 2009 to inform FY 2011- 2015 research investments.

In 2009, EGAT will undertake a review of long-term training in response to BIFAD's call for increased attention and piloting of new approaches. This also coincides with USAID's drafting of a new policy on human and institutional development that aims to ensure that USAID is giving sufficient attention to the importance of building these foundations of development in all sectors.

### **Emerging Food Security Challenges**

The global food price crisis of 2008 has increased attention on the importance of international agricultural development. USAID is addressing this crisis by increasing short-term investment as well as developing a longer term strategy for food security. This strategy focuses on numerous issues, including the gap between emergency humanitarian assistance and development assistance efforts, the root causes of food crises and chronic poverty, the impacts of climate change on agriculture, and food security and how agriculture can address the issue.

## **USAID Development Leadership Initiative**

USAID plans to rebuild its corps of technical staff by hiring, training and placing in the field junior officers (JOs) specialized in agriculture as part of the Development Leadership Initiative. This will be a multi-year effort to rebuild a robust corps of development professionals in key technical areas through the doubling of USAID's direct hire overseas staff by 2012. Under this initiative, up to ten agriculture JOs will be hired by the end of FY 2009. USAID plans to employ a continuous open recruitment process to rapidly increase these numbers through 2012. The minimum academic qualification for this program is graduate-level training in one of the agricultural sciences, which includes agribusiness, agronomy, animal science, aquaculture, crop/plant science, entomology, food science and technology, forestry, horticulture, human nutrition, plant pathology, rural sociology, soil science, agricultural economics, agricultural education and agricultural engineering. The first group of agriculture JOs began the Washington portion of their training in November 2008 and will be placed in USAID's overseas missions in March 2009. EGAT's Office of Agriculture is leading the recruitment of new agricultural staff.

## **Africa - U.S. Higher Education Initiative**

USAID will support the Africa-U.S. Higher Education Initiative, a collaboration with the National Association of State Universities and Land Grant Colleges, the Partnership to Cut Hunger and Poverty in Africa, the Forum for Agricultural Research in Africa, Higher Education for Development, and the American Distance Education Consortium on the Africa – U.S. Higher Education Initiative. The initiative will focus on agriculture, the environment and natural resources; health; science and technology; engineering; education and teacher training/preparation; and business, management and economics. The initiative will help build African university capacity for instruction and problem-solving.

### SECTION III: SUMMARY OF BIFAD’S ACTIVITIES

BIFAD (Table 5) participates in the planning, development, implementation and monitoring of Title XII activities as described in Section 297 of the Famine Prevention and Freedom From Hunger Improvement Act of 2000 (P.L. 106-373) of the Foreign Assistance Act of 1961, as amended. BIFAD’s primary roles are to assist in the implementation of Title XII and to advise the USAID Administrator on any and all issues as requested.

#### **BIFAD’s Shift to Strategic Directions for Food and Agriculture**

BIFAD’s FY 2007 activities focused on gaining a better understanding of USAID mandates to implement transformational development, the new Foreign Assistance Framework, and the role that universities can play in the USG’s interagency process, concentrating on the identification of ways to mobilize the universities’ scientific expertise to support USAID’s priorities and mandates.

During FY 2007, BIFAD held meetings on October 18, 2006 in Des Moines, Iowa; on February 27, 2007 in Washington, D.C.; and on May 15, 2007 in Washington, D.C. In lieu of a summer meeting, it held a summer executive teleconference on June 6, 2007. The Board’s 2007 meetings covered the following themes: “Role of Universities in African Development,” “Forging Critical Partnerships to Initiate a Green Revolution in Transformational Development and Budget Implications for U.S. Universities,” “Challenges Facing U.S. Foreign Development Assistance: 2008 and Beyond,” and “The Foreign Assistance Framework.” BIFAD integrated these themes into their planning for the 2008 Conference of Deans.

**Table 5.** BIFAD Members and Secretariat in FY 2007

<i><b>BIFAD Members</b></i>	
Robert Easter, Chair	University of Illinois
Catherine Bertini	Syracuse University
Allen Christensen	Brigham Young University
William DeLauder	Delaware State University
Sharron Quisenberry	Virginia Polytechnic Institute and State University
Tim Rabon	Mesa Verde Enterprises
<i><b>BIFAD Secretariat</b></i>	
Ronald Senykoff	U.S. Agency for International Development

The Board reviewed the 2006 report “*Implementation of Title XII*” by former USAID Assistant Administrator Richard Bissell. The recommendations in the report were raised to USAID for consideration, particularly with regard to returning the BIFAD Secretariat to the USAID

Administrator's office. BIFAD also advised USAID to consult with BIFAD on the status of the IPM and SANREM CRSPs after the completion of their program reviews in FY 2008.

At the encouragement of BIFAD, USAID continued its Intergovernmental Personnel Act<sup>4</sup> with a U.S. land-grant university, which assigned a senior faculty member to EGAT/AG as a senior advisor for university relations and agricultural research, outreach and training. The advisor helped USAID develop the Horticulture CRSP as approved by BIFAD.

### **Strategic Partnership for Agricultural Research and Education**

To carry out its mandate, BIFAD draws on the efforts of its working subcommittee, the Strategic Partnership for Agricultural Research and Education (SPARE, Table 6). SPARE undertakes strategic planning, program conceptualization, and monitoring/evaluation. During 2007, SPARE

- reviewed the scopes of work for the SANREM and IPM CRSPs evaluations;
- deliberated on the definition of a Title XII university and recommended a clearer definition and a process for preparing a list of qualifying universities;
- recommended the assessment of the BIFAD-sponsored pilot long term training programs;
- recommended clarification by USAID's Office of Acquisitions and Assistance (OAA) on critical research and training program issues; and
- recommended no-cost extensions for the Soil Management, Bean/Cowpea, and Aquaculture CRSPs.

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<sup>4</sup> The Intergovernmental Personnel Act (U.S.C. §§3371-3375) permits temporary assignments of skilled personnel to or from State and local governments, institutions of higher education, Indian tribal governments and other eligible governments. Under the IPA, a Title XII university faculty member is selected competitively to work within USAID for up to two years to strengthen communication between the Agency and the Title XII community.



**Table 6.** SPARE Members, Alternates and Secretariat in FY 2007

<i>SPARE Members</i>	
Sandra Russo, Chair	University of Florida
Jeff Brokaw	U.S. Agency for International Development
Jane Gleason	Development Alternatives, Inc.
Jeff Hill	U.S. Agency for International Development
Ray Miller	University of Maryland
Robert Paarlberg	Wellesley College, Harvard University
Harriett Paul	Florida A&M University
John Thomas	U.S. Agency for International Development
<i>SPARE Alternates</i>	
William DeLauder	Delaware State University
Chris Pannkuk	Washington State University
<i>SPARE Secretariat</i>	
Susan Thompson	U.S. Agency for International Development

## **SECTION IV: BIFAD'S VIEWS ON THE FY 2007 TITLE XII REPORT TO CONGRESS**

The period covered by the USAID Title XII FY 2007 Report to Congress (1 October 2006 – 30 September 2007) was one of change and promise for BIFAD. New developments created opportunities for BIFAD to fulfill its Congressional mandate to advise and assist the USAID Administrator “in the planning, development, and implementation of, initiating recommendations for, and monitoring, the activities” of Title XII. For two years USAID had been engaged in an intensive management overhaul in an effort to make U.S. foreign assistance more accountable, efficient, transparent, and coherent through a new “Transformational Development” framework. This was, at the time, a priority of the Secretary of State, who found it difficult to know where and how foreign assistance dollars were being spent. While the focus on a new foreign assistance framework was laudable, it remains an open question whether or not the end product accomplished its goals. BIFAD’s initial findings, based on public input from stakeholders and scholars during its open meetings was that the transformational model in practice was excessively process oriented and required an elaborate management structure overly burdened with benchmarks and measurements necessitating inordinate amounts of staff time to implement. It detracted significantly from the ability of USAID’s central and Mission workforce to develop innovative and creative programmatic strategies for responding to new challenges while managing an ongoing agenda with flexibility and nimbleness for improved results. In addition, with USAID leadership seemingly pre-occupied with implementing a new management structure there was minimal engagement of BIFAD and its university partners.

An important development for BIFAD that provided opportunities for more active engagement with USAID was the nomination, and subsequently confirmation, of Henrietta Fore as the USAID Administrator. Ms. Fore seemed to sense that a balance between management reforms and program integrity was in order. She also welcomed a growing dialogue with BIFAD and appreciated the potential benefits for USAID in leveraging the capacity of U.S. colleges and universities in helping the Agency deal with a growing number of priorities with fewer resources. As the year wore on, Administrator Fore responded to BIFAD’s ideas in a meaningful, substantive and genuine way.

The other key development that precipitated a heightened appreciation for BIFAD and U.S. higher education was the global food crisis. While the political repercussions in the form of civil unrest and food embargoes were not manifest until later, the rise in commodity prices and spot food shortages were increasing the number of hungry and malnourished populations in fragile countries and regions. Among the various factors leading up to the crisis was the decline in agricultural productivity resulting from, in part, a rather dramatic decrease in investment in agricultural development from multilateral donors such as the World Bank, as well as country donors, including the United States. It is interesting to note that the purpose of Title XII, when it was passed over 30 years ago during another period of global food shortages, was to avoid a repeat of that era and the kind of situation in which the world now finds itself. While it would be a stretch to suggest that ignoring Title XII was a principal cause of the food crisis of the new Millennium, BIFAD believes that a more robust agricultural development strategy would have equipped a number of food fragile countries to minimize the effects of the current troubles.

It was against this backdrop that, as FY 2007 came to a close, BIFAD proposed organizing a “Conference of Deans of Agriculture”. BIFAD’s vision was to bring together the nation’s leading thinkers in agriculture from colleges and universities with major agriculture programs, to brainstorm on what the emerging food, nutrition and agricultural issues will be over the next 20 years, recommend some strategies that can help address these challenges, and define a more prominent role for higher education in working to help solve these important global problems. BIFAD authorized a process to put the conference into play, and we anticipate that the next Title XII report will be able to report some accomplishments resulting from the gathering. It remains our firm belief that BIFAD can make a major contribution to the food crisis debates and that policymakers, once made aware of the resources that colleges and universities bring to the discussion, will welcome an expanded partnership role for higher education.

The USAID Title XII report to Congress for FY 2007, mentioned the conference of deans proposal only briefly. We felt it was important to have some context. The report itself we feel is a significant improvement over the reports of recent years. The Executive Summary provides a very good snapshot of Title XII activities. It provides relevant and useful information about Title XII around the functional areas of research, training and outreach. In general the report clearly demonstrates the wide range of topics and technological advances achieved by U.S. universities in support of USAID’s mission. These examples highlight the opportunity that Title XII makes available to the nation in achieving its diplomatic, humanitarian and economic objectives. It is important to note that these examples constitute only a small fraction of the work that colleges and universities are doing around the world.

We want to focus on a few key points made by the report. First is the report’s discussion on leveraging. We believe that the leveraging aspect that colleges and universities bring to USAID is one of the most important arguments for the cost-effectiveness of engaging higher education in development. It is underappreciated and for the most part an untold story. Universities bring to a project a wide range of partners and expertise, and usually provide grant matches of significance.

Second, the report also makes clear that the activities of Title XII colleges and universities in the field and that relations with the Missions are also very important. With less and less resources in USAID Central, it is increasingly important for universities to engage at the mission level and demonstrate the value added of human and institutional capacity building for sustainable economic growth through partnerships with universities.

Third, we are encouraged by the strong support the report gives to long-term training efforts. However, the number of long-term trainees granted degrees supported by EGAT was only 572. Twenty years ago, the Agency supported upwards of 15,000 long-term trainees. In the past, these trainees have become government ministers, scientists, administrators and national leaders - the human capital that is critical for a developing country to move forward economically, socially and politically. These individuals have formed important diplomatic and business links that facilitated productive interactions with the U.S., and have been champions of democracy and forces for stability, free markets and security in their countries. Indeed, China is now providing long-term degree training to thousands of young Africans, building the links and loyalties that once went to the United States. We hope that the report reflects a renewed commitment to long-term training. A few years ago BIFAD initiated several long-term training pilot projects to

demonstrate new and innovative ways to undertake long-term training at considerably less cost. We have asked for an analysis of these pilots and hope USAID/EGAT will be able to produce and share the lessons learned.

Fourth, the Title XII report spends considerable time discussing EGAT's agriculture research portfolio and the importance of research in addressing food security issues. Here again, we hope that the report is an indication of a renewed commitment to building up a solid research program in EGAT. We believe that chronic under-investment in agricultural research by USAID has contributed to the decline in agricultural productivity worldwide by diminishing the ability of U.S. Land-Grant and other institutions to help developing countries build human and institutional capacity to conduct the research, provide the education, and develop the technologies necessary for long-term increased agricultural growth. We are sensitive to the fact that other Congressional priorities impacted USAID's ability to devote resources to research, and we look forward to working with the Agency to make the case for research.

The fact that the Agency could not support collaborative projects between the CGIAR Centers and U.S. universities is a significant setback, and this is something that BIFAD will closely follow and work to rectify. The Centers are a valuable resource and partnerships between them and U.S. universities have led to a number of important breakthroughs, and continued collaboration will help maintain and improve the global agriculture research architecture.

The report recognizes the important contribution of the CRSPs and gives a number of important examples of the work that the CRSPs are doing. CRSPs leverage the capability of U.S. universities to help build human and institutional capacity of developing countries to improve their agricultural practices and help them feed their people. The CRSPs are necessary to provide the technologies and trained scientists to address agricultural challenges in the developing world and to help provide long-term solutions to the global food crisis. With more than 60 U.S. universities from 44 states participating in the 9 CRSPs, the CRSPs remain a vital part of EGAT's research portfolio. We hope that USAID will increase its support for the CRSPs and also initiate new university-based agricultural research programs that provide the Agency broader access to the university research enterprise.

Fifth, BIFAD has long been concerned about the decline in USAID's technical workforce. The report mentions the Agency's new Development Leadership Initiative (DLI) to rebuild a robust corps of development professionals in key technical areas. We strongly support the DLI and look forward to helping the Agency recruit the quality workforce it needs.

Sixth, one of BIFAD's areas of interest, not reflected in the report, was USAID's proposed rule that prime contractors must receive Agency consent before switching key subcontractors. We have received complaints that a prime contractor will list a university as a key subcontractor to win the award, but then do not follow through and share the work. BIFAD submitted comments endorsing the proposal but also asking that the key subcontractors be part of any discussion. As FY 2007 came to a close, we were not aware that any decision had been made.

Lastly, over the last several years, BIFAD has made a concerted effort to highlight the role of universities in development and elevate its position within USAID. At the start of FY 2007,

BIFAD passed three resolutions, one calling for greater support for long-term degree training, another endorsing increased funding for agricultural research and the CRSPs, and the third asking the Administrator to observe the Congressional intent of Title XII for BIFAD to “advise and assist” in carrying out Title XII programs and re-establish BIFAD’s authority within the Agency. Historically, BIFAD’s relative importance to the Administrator was tied closely to USAID’s focus on agricultural development. In the early years BIFAD had a broad and bold vision of its role and was supported by the USAID administration of the time. BIFAD was considered key in the application of university-led cutting-edge research and technical assistance in solving food and nutrition problems around the world. However, over the last fifteen years USAID support has diminished reflecting the shifts across the development assistance landscape, and as a result the Board’s involvement in agricultural development has narrowed along with its stature within the Agency. As noted above, a new Administrator, a bold vision, and an appreciation for agriculture has provided new opportunities for BIFAD to reach across Agency bureaus, moving beyond EGAT (but still retaining strong connections to the Bureau). It is this new, positive and constructive relationship that BIFAD enters FY 2008. We are optimistic that U.S. colleges and universities will once again be seen as the valued partners as envisioned by Title XII. We are hopeful that the new found appreciation for the role of agricultural development in promoting economic growth and prosperity in developing countries will be sustained. There is much to get done. We want to do our part.



Dr. Robert A. Easter  
Chair  
Board for International Food and Agricultural Development (BIFAD)

<b>Annex Table 1. U.S. universities that participated in Collaborative Research Support Programs during FY 2007</b>											
	Collaborative Research Support Programs <sup>5</sup>										
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>
Auburn University		x						x			
Clemson University							x				
Cornell University	x	x		x	x			x	x	x	
Dartmouth College	x										
Florida A&M University							x	x	x		
Florida International University		x									
Fort Valley State University							x				
Georgia Institute of Technology	x										
Georgia State University	x										
Harvard Business School	x										
Indiana University					x				x		
Iowa State University					x				x		
The Johns Hopkins University	x										
Kansas State University						x	x		x		x
Louisiana State University	x		x								
Michigan State University	x	x		ME			x				
Mississippi State University						x					

<sup>5</sup> **List of abbreviations** – AMA: Assets and Market Access; Aqua: Aquaculture; AquaFish: Aquaculture & Fisheries; B/C: Bean/Cowpea; GL: Global Livestock; INTSORMIL: International Sorghum and Millet; IPM: Integrated Pest Management; ME: Management Entity; SANREM: Sustainable Agriculture and Natural Resource Management; SM: Soil Management; SMOG: Sorghum Millet and Other Grains.

**Annex Table 1. U.S. universities that participated in Collaborative Research Support Programs during FY 2007 (cont.)**

	Collaborative Research Support Programs										
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>
Montana State University										x	
North Carolina A&T State University								x	x		
North Carolina State University		x	x				x	x		x	
The Ohio State University		x				x	x				x
Oregon State University	x	ME	ME	x							
Penn State University				x			x		x		
Purdue University	x	x	x	x		x	x	x			x
Southern Illinois University-Carbondale		x									
Syracuse University					x						
Texas A&M University				x	x	x		x	x	x	x
Texas Tech University		x	x								
University of Alabama at Birmingham								x			
University of Arizona		x	x				x				
University of Arkansas at Pine Bluff		x	x								
University of California, Berkeley	x								x		
University of California, Davis	x				ME		x				
University of California, Los Angeles					x						

**Annex Table 1. U.S. universities that participated in Collaborative Research Support Programs during FY 2007 (cont.)**

	Collaborative Research Support Programs										
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>
University of California, Riverside				x			x				
University of California, San Diego	x										
University of Colorado									x		
University of Connecticut								x	x		
University of Connecticut - Avery Point			x								
University of Denver									x		
University of Florida							x	x		x	
University of Georgia		x		x			x	ME			
University of Hawaii at Hilo		x	x								
University of Hawaii at Manoa										ME	
University of Kentucky					x						
University of Michigan	x	x	x								
University of Missouri									x		
University of Minnesota				x			x				
University of Nebraska				x		ME					ME
University of Puerto Rico				x							
University of Rhode Island		x	x								



**Annex Table 1. U.S. universities that participated in Collaborative Research Support Programs during FY 2007 (cont.)**

	Collaborative Research Support Programs										
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>
University of Tennessee		x									
University of Vermont					x						
University of the Virgin Islands		x									
University of Wisconsin	ME										
University of Wyoming					x						
Utah State University					x						
Virginia State University							x				
Virginia Polytechnic Institute and State University			x				ME	x	ME	x	
Washington State University				x			x				
West Texas A&M University						x					x
Yale University	x				x						
<b>TOTAL</b>	<b>16</b>	<b>18</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>7</b>	<b>18</b>	<b>12</b>	<b>14</b>	<b>7</b>	<b>6</b>
Minority Serving Institutions							3	2	2		

Annex Table 2. Host countries of USAID centrally funded Title XII programs during FY 2007 <sup>6</sup>																	
	Collaborative Research Support Programs											Partnerships for Food Industry Development			Food Security	ABSP II	HED
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>	<i>F&amp;V</i>	<i>MSP</i>	<i>NP</i>			
Afghanistan																	x
Albania							x										x
Angola															x		
Azerbaijan													x				
Bangladesh	x	x					x			x							x
Benin																	x
Bolivia		x						x	x	x							
Botswana						x					x						
Brazil		x								x							
Burkina Faso				x		x	x				x						x
Burundi																	x
Cambodia	x		x														
Cameroon				x													
China		x	x							x							
Colombia		x								x							
Costa Rica				x						x							
Dominican Republic		x		x			x										
Ecuador		x		x			x		x	x							
El Salvador				x		x					x						

<sup>6</sup> **List of abbreviations** – ABSP II: Agricultural Biotechnology Support Program II; AMA: Assets and Market Access; Aqua: Aquaculture; AquaFish: Aquaculture & Fisheries; B/C: Bean/Cowpea; F&V: Fruits and Vegetables; GL: Global Livestock; HED: Higher Education for Development; INTSORMIL: International Sorghum and Millet; IPM: Integrated Pest Management; MSP: Meat, Seafood and Poultry; NP: Natural Products; SANREM: Sustainable Agriculture and Natural Resource Management; SM: Soil Management; SMOG: Sorghum Millet and Other Grains.

Annex Table 2. Host countries of USAID centrally funded Title XII programs during FY 2007 (continued)																	
	Collaborative Research Support Programs											Partnerships for Food Industry Development			Food Security	ABSP II	HED
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>	<i>F&amp;V</i>	<i>MSP</i>	<i>NP</i>			
Eritrea						x											
Ethiopia	x				x	x	x				x						
The Gambia							x			x							
Georgia													x				
Ghana	x		x	x	x	x	x			x	x			x		x	
Guatemala	x	x		x			x										
Guinea							x										
Guyana			x														
Haiti				x				x									x
Honduras		x		x		x	x			x							
India	x						x					x				x	
Indonesia	x	x	x				x		x								
Jamaica				x													
Kenya	x	x	x		x	x	x		x	x	x				x		
Kyrgyzstan							x										
Laos										x							
Liberia	x																
Malawi	x			x										x	x		
Mali						x	x	x		x	x				x	x	
Mexico		x	x						x	x					x		x
Moldova							x										
Mongolia					x												
Mozambique				x		x				x	x			x			
Namibia						x											
Nepal		x	x				x			x							
Nicaragua	x	x	x	x		x				x	x		x				
Niger				x		x		x			x					x	

**Annex Table 2. Host countries of USAID centrally funded Title XII programs during FY 2007 (continued)**

	Collaborative Research Support Programs											Partnerships for Food Industry Development			Food Security	ABSP II	HED
	<i>AMA</i>	<i>Aqua</i>	<i>AquaFish</i>	<i>B/C</i>	<i>GL</i>	<i>INTSORMIL</i>	<i>IPM</i>	<i>Peanut</i>	<i>SANREM</i>	<i>SM</i>	<i>SMOG</i>	<i>F&amp;V</i>	<i>MSP</i>	<i>NP</i>			
Nigeria				x		x					x						
Panama										x							
Peru	x	x					x		x								
Philippines		x	x				x		x	x							x
Rwanda								x							x		
Senegal				x		x	x	x		x	x				x		x
South Africa		x		x		x	x				x		x	x	x		
Tajikistan							x										
Tanzania		x	x	x	x	x	x				x					x	
Thailand		x								x							
Timor-Leste										x							
Togo																	x
Uganda	x				x	x	x	x	x	x	x						x
Ukraine							x						x				
Uzbekistan							x										
Vietnam		x	x				x		x								
Zambia						x			x		x				x	x	
Zimbabwe				x													