This report is submitted 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
Fiscal Year 2006 Title XII Report to Congress

EXECUTIVE SUMMARY

I. Fiscal Year 2006 Program

USAID Agriculture Programs

In Fiscal Year 2006, the U.S. Agency for International Development (USAID) began its alignment of programs with the new Foreign Assistance Framework. Five priority objectives support the goal of moving countries toward self-sufficiency and strengthening strategic partnerships: Peace and Security; Governing Justly and Democratically; Investing in People; Economic Growth; and Humanitarian Assistance.

Title XII programs are part of the Agriculture Program Area, under the Economic Growth Objective. USAID agriculture programs not only address agricultural sector productivity issues, but recognize the importance of an improved agricultural enabling environment (policy reform and institutional strengthening) and reducing rural poverty on sustained and broad-based economic growth.

USAID agriculture programs, including Title XII activities, are programmed through USAID’s Bureau for Economic Growth, Agriculture and Trade (EGAT), the Bureau for Democracy, Conflict and Humanitarian Assistance (DCHA), regional bureaus, and missions. In Fiscal Year 2006, over $550 million was programmed for all agricultural programs, including Title XII, with 89.4 per cent allocated to USAID’s regional bureaus for disbursement to the missions and to the Food for Peace Office in DCHA for country-level programs. During this year, EGAT, which provides USAID technical leadership in agriculture, programmed $53.5 million in agricultural activities.

In Fiscal Year 2006, EGAT programs supported Title XII activities that granted degrees to 210 students; provided over 9,800 agriculturalists with short-term training; and disseminated improved technologies and best practices that reached 9,875 producers.

Title XII programs:

- support USAID initiatives including Avian Influenza, Biodiversity, Biotechnology, Climate Change and the Presidential Initiative to End Hunger in Africa (IEHA);
- build public-private partnerships to enhance development by mobilizing the ideas, efforts and resources of the public sector with those of the private sector and non-governmental organizations (NGOs);
- conduct research on critical development constraints to agriculture-led economic growth;
- provide long-term training opportunities with U.S. universities;
- build institutional capacity;

1 Section 296(h) of the Act defines agriculturalists as “farmers, herders, and livestock producers, individuals who fish and other employed in cultivating and harvesting food resources from salt and fresh waters, individuals who cultivate trees and shrubs and harvest non-timber forest products, as well as the processors, managers, teachers, extension specialists, researchers, policy makers, and others who are engaged in the food, feed, and fiber system and its relationships to natural resources”.

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support outreach activities to disseminate and advance scientific and technological discovery; and
pilot innovations, address constraints, and share best practices and lessons learned with the field.

II. Programs and Activities Over the Next Five Years

In Fiscal Year 2006, EGAT’s Offices of Agriculture and Natural Resources Management concluded a research priority-setting-exercise that is anticipated to impact Title XII activities over the next five years. This culminated in a research framework with four research themes:

- Staple Food Systems for Increased Incomes;
- Higher Value Products for Diversified Incomes;
- Agricultural and Natural Assets for Maintenance and Regeneration of the Resource Base; and
- Policy, Markets, Trade and Governance for Pro Poor Growth.

The framework also identified a new Collaborative Research Support Program (CRSP) portfolio finalized after USAID consulted U.S. stakeholders and BIFAD, and its sub-committee, the Strategic Partnership for Agriculture Research and Education (SPARE).

Collaborative Research Support Programs

USAID is working with U.S. universities as it elaborates a global research program that target constraints, as identified by development practitioners and local stakeholders. To maximize the CRSP impact and better program our resources, it is expected that a high degree of interaction among the CRSPs take place, with research priorities and development constraints identified by one CRSP informing research activities in others. Core Program Components provide a consistent approach across the portfolio and help development practitioners identify common constraints and practices. Focal Areas for Development Results target research toward ultimate development impact.

The research framework and the new CRSP research portfolio will direct EGAT’s research investments over the next five years (Fiscal Years 2006-2010).

III. Summary of the Board for International Food and Agricultural Development (BIFAD) Activities


During the year, BIFAD, its subcommittee SPARE, and USAID collaborated on the identification of the new CRSP portfolio; USAID’s long-term training pilots in Africa; university efforts to implement and comply with the Agency’s participant training database and tracking system (TraiNet) and J-1 visa requirements; university involvement as sub-awardees under prime and sub-award contracts; and an analytical study to enhance communication between USAID and the U.S. university community. At the encouragement of BIFAD, USAID continued its
Intergovernmental Personnel Act (IPA)\(^2\) with a U.S. land-grant university which seconded a senior faculty member to the EGAT Agriculture Office as a senior advisor for university relations and agricultural research, outreach and training.

\(^2\) 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.
Introduction

Title XII of the Foreign Assistance Act of 1961, as amended calls upon the United States to mobilize the capacities of the U.S. land-grant and other eligible universities and their public and private sector partners in order to achieve the mutual goals among nations of ensuring food security, human health, agricultural growth, trade expansion, and the wise and sustainable use of natural resources. In addition, the United States should involve these universities and their partners in global research; improving human and institutional capacity; agricultural development and trade; extension services; and the application of agriculture sciences to solving food, health, nutrition, rural income, and environmental problems.

Section 300 of the Act calls for the President to transmit a report to Congress, not later than September 1 of each year, 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 the Board for International Food and Agricultural Development (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.

Section 298(e) of the Act also states that BIFAD “shall be consulted in the preparation of the annual report required by Section 300 of this title”. USAID has prepared this report in consultation with BIFAD. The report is organized according to the above four components specified in the legislation.

I. Fiscal Year 2006 Program

USAID Agriculture Programs

In Fiscal Year 2006, USAID began its alignment of programs with the new Foreign Assistance Framework’s goal of helping “build and sustain democratic, well-governed states that respond to the needs of their people, reduce widespread poverty and conduct themselves responsibly in the international system”. Five priority objectives3 support the goal of moving countries toward self-sufficiency and strengthening strategic partnerships.

The Agriculture Program Area, under the Economic Growth objective, draws upon Title XII’s definition of agriculture to define USAID agricultural programs4. These address sector productivity issues (research and technology dissemination; resource management; agribusiness and producer organizations; markets and trade; finance; and emerging threats), improving agricultural enabling environment (institutions and policies) and reducing rural poverty (agricultural livelihoods) on sustained and broad-based economic growth.

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3 These objectives are Peace and Security; Governing Justly and Democratically; Investing in People; Economic Growth; and Humanitarian Assistance.
4 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.
The Agency’s agriculture program received its funds from the following accounts:

- $203,435,000 from Development Assistance (DA);
- $25,605,000 from the Economic Support Fund (ESF);
- $11,336,000 from the Support for East European Democracy Act of 1989 (SEED);
- $29,113,000 from the Freedom Support Act (FSA);
- $260,661,000 from PL 480, Titles II and V (Food for Peace and John Ogonowski Farmer-to-Farmer); and
- $20,300,000 from the International Disaster and Famine Assistance Account (IDFA).

**Table One: Fiscal Year 2006 USAID Allocations by Bureau**

For All Agency Agriculture Programs ($ thousand)

<table>
<thead>
<tr>
<th>Bureau/Independent Office</th>
<th>Fiscal Year 2006*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa Bureau</td>
<td>353,766</td>
</tr>
<tr>
<td>Asia and the Near East Bureau</td>
<td>43,609</td>
</tr>
<tr>
<td>Europe and Eurasia Bureau</td>
<td>42,948</td>
</tr>
<tr>
<td>Latin America and the Caribbean Bureau</td>
<td>51,888</td>
</tr>
<tr>
<td>Economic Growth, Agriculture and Trade Bureau</td>
<td>53,521</td>
</tr>
<tr>
<td>Democracy, Conflict and Humanitarian Assistance Bureau</td>
<td>1,148</td>
</tr>
<tr>
<td>Policy and Program Coordination Bureau</td>
<td>1,500</td>
</tr>
<tr>
<td>Office of Global Development Alliances</td>
<td>2,070</td>
</tr>
<tr>
<td><strong>USAID Total</strong></td>
<td><strong>550,450</strong></td>
</tr>
</tbody>
</table>

*The table sets forth the Fiscal Year 2006 Congressional Budget Justification (CBJ) Actual as reported in the Fiscal Year 2008 CBJ. These numbers are based on final appropriation controls and Operating Unit (OU) cross-walks of their Fiscal Year 2006 budgets with the Foreign Assistance Framework program areas and elements hierarchy. In the cross-walk the OUs linked their Fiscal Year 2006 project budgets to specific program areas and elements. The cross-walk retroactively included both PL 480 Title II emergency and non-emergency (development) food aid. Of these funds, $72.438 million (extrapolated) was programmed for non-emergency food programs that support agriculture development, and the remainder ($153.774 million) was programmed as emergency food aid of which, $93.9 million was for the Productive Safety Net Program in Ethiopia, which began in 2005 and for other asset-preserving actions. These emergency funds were not reported in previous year agriculture program figures nor included previously in field OU budget reports. Source: Budget Operating Year System (BOYS).

**USAID Title XII Programs**

The EGAT Bureau has lead responsibility for the Agency’s Title XII programs. Through its programs, EGAT mobilizes the U.S. universities, their public and private partners, and the international agricultural research centers to undertake research on priority agricultural constraints; broadly disseminate findings; strengthen human and institutional capacity; and pilot innovations. Most of USAID’s Title XII programs are managed by EGAT’s Offices of Agriculture (AG); Natural Resources Management (NRM); Environment and Science Policy (ESP); and Education (ED). These offices draw upon the expertise of their Title XII partners to provide technical advice and support to USAID’s Washington bureaus and field missions.

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**Title XII Activities**

Title XII programs support a number of Agency initiatives and priorities, such as the Presidential Initiative to End Hunger in Africa (IEHA), Biodiversity, Biotechnology, Climate Change, and Avian Influenza. Examples in Fiscal Year 2006 include:

- Supporting the Presidential Initiative to End Hunger in Africa, seven women from sub-Saharan Africa were selected as Women in Science Program International Science and Technology Fellows. They participated in a leadership training course with the Consultative Group for International Agriculture Research (CGIAR) Gender and Diversity program to improve their management and leadership skills and in a mentoring program at the University of Florida, where they were matched with agricultural science experts.
- Under the direction of Virginia Tech University, the Integrated Pest Management Collaborative Research Support Program's Latin America and the Caribbean Program on Crops for Broad-based Growth and Perennial Production for Fragile Ecosystems is working on biodiversity monitoring, beginning with an assessment of cacao production on biodiversity in Ecuador. The objective is to measure how different crop production systems can maintain and improve the quality of fragile ecosystems while enhancing biodiversity. Partners are Florida A&M University; Ohio State University; the USDA Agriculture Research Service Sustainable Perennial Crops Laboratory; Instituto Nacional Autónomo de Investigaciones Agropecuarias (Ecuador); and the World Cocoa Foundation.
- The Sustainable Coastal Communities and Ecosystems Program is a partnership between USAID and the University of Rhode Island; the University of Hawaii-Hilo; The Nature Conservancy; Conservation International; and the World Wildlife Fund. They are working to improve best practices in coastal/fisheries/aquaculture management and enhancing biodiversity.
- The Agricultural Biotechnology Support Project II at Cornell University joins Tamil Nadu Agricultural University and the University of Agricultural Sciences at Dharwad in India; the India Institute of Vegetable Research; the Bangladesh Agricultural Research Institute; and the University of the Philippines Los Banos to develop new pest and disease-resistant eggplant, potatoes, rice, groundnut, papaya, and tomatoes. Asian scientists also receive technical training in U.S. universities as well as training in intellectual property management and licensing.
- In alliances with several Caribbean Basin institutions, researchers working on the University of Florida’s Caribbean Food Systems Vulnerability to Global Environmental Change project modeled the impact of environmental change and climate change on food security. The result is a better understanding of the vulnerability of impoverished groups to climate change in the Caribbean Basin.
- The Global Livestock Collaborative Research Support Program at the University of California-Davis developed the Avian Flu School (AFS), an international train-the-trainer program, which focuses on preventing, detecting and responding to H5N1 Highly Pathogenic Avian Influenza (HPAI) outbreaks. The school has provided training to veterinarians, village outreach and extension officers, public health doctors in Africa.

**Title XII Leveraging**

U.S. universities and their public and private partners bring significant resources to the Title XII program, often in financial as well as personnel and physical resources. These often lead to opportunities to leverage investments from other government and private sector sources,
increasing program impact and providing additional returns on U.S. Government development investments. In Fiscal Year 2006, over 60 percent of the U.S. universities reporting Title XII activities indicated partnership commitments. In Fiscal Year 2006:

- The Higher Education in Development India Partnership Project with Ohio State University and Punjab Agricultural University is collaborating on the development of a food industries center. The partners have leveraged a 200 million rupees ($3,500,000) commitment from the Punjab state government to build the Food Industries Center.
- The Sustaining Partnerships in Rwanda to Enhance Agribusiness Development project with Texas A&M University and the National University of Rwanda, which focuses on high-value crop development and marketing of Rwandan products, leveraged over $4,000,000 from its private sector partners: Radio SALUS (Illuminatio et Salus Populi), Office des Cafes du Rwanda, Coffee Cooperatives, the Private Sector Federation, the Rwanda Ministry of Commerce, and the Rwandan Development Bank. This is a follow-on from a HED Rwanda, Michigan State University and Texas A&M University partnership.
- Ohio State University has joined the Centro de Información y Docencia Económica on a HED Partnership Project to build rural and micro-finance capacity in Mexico. The partnership focused on strengthening micro-credit and micro-finance operations in rural Mexico. The Ford Foundation has invested $150,000 in associated research projects.

**Title XII Research**

Title XII research activities are supported through the Collaborative Research Support Program (CRSP); the Consultative Group for International Agricultural Research (CGIAR); and other research programs implemented by Title XII universities.

*Collaborative Research Support Program (CRSP)*

The Collaborative Research Support Program began in 1978. During Fiscal Year 2006, three new CRSPs were competed and Leader with Associate cooperative agreements awarded:

- Sorghum, Millet, and Other Grains to the University of Nebraska;
- Assets and Market Access to the University of Wisconsin; and
- Aquaculture & Fisheries to Oregon State University.

Ongoing CRSPs include:

- Integrated Pest Management (Virginia Tech University);
- Bean and Cowpea (Michigan State University);
- Sustainable Agriculture and Natural Resources Management (Virginia Tech University);
- Peanut (University of Georgia);
- Global Livestock (University of California at Davis); and
- Soils Management (University of Hawaii).

Each CRSP is led by a U.S. Title XII university, which houses the Management Entity (ME), that partners with multiple U.S. and international research and educational institutions. During Fiscal Year 2006:
• More than 60 U.S. universities participated in the program, partnering with over 300 institutions participating in 70 countries.
• The U.S. universities provided 25 percent matching funds per institution.

Consultative Group for International Agricultural Research

The Consultative Group on International Agricultural Research is a strategic partnership of countries, international and regional organizations, and private foundations supporting fifteen research centers. The centers fund agricultural science to reduce poverty, foster human well-being, promote agricultural growth, and protect the environment. With USAID funding, CGIAR centers have led the response to a new strain of wheat rust that threatens crops in Africa and Asia, developed policies and land management practices to reduce tropical deforestation, devised new strategies to combat desertification and promote high-value horticultural crops, made improved seeds and new technologies available to farmers, and developed new drought-resistant crops that will help farmers adapt to climate change.

CGIAR centers have extensive collaborative research and capacity-building relationships with U.S. universities and other U.S. public (e.g., USDA, Agricultural Research Service, Donald Danforth Plant Science Center) and private (e.g., Dupont-Pioneer, Monsanto, Ceres) research partners. The USAID Linkage Program helps CGIAR Centers to partner with U.S. scientists, joining the capacities of Title XII universities with those of the international research centers to address pressing agricultural problems in developing countries. In Fiscal Year 2006:

• Approximately $2 million was made available to support over 50 projects between the CGIAR Centers and 35 U.S. universities – American, Arizona, University of California-Davis, University of California-Berkeley, University of California-Riverside, Colorado State, Cornell, Delaware, Florida, Georgia, Harvard, Illinois, Iowa, Iowa State, Kansas State, Michigan State, Ohio State, Oklahoma State, Pennsylvania State, Purdue, Rhode Island, tufts, Vermont, Virginia Tech, Washington State, Wisconsin, Yale.
• The WorldFish Center and the University of Rhode Island worked to improve fisheries in Lake Malawi resulting in increased incomes for local fishers; and a sustainable source of protein for the local population.
• Scientists at the International Institute of Tropical Agriculture (IITA) and Washington State University identified and contained viruses spread through cassava cuttings. Cassava is a staple food crop across much of Africa.
• The International Rice Research Institute (IRRI) established a consortium of scientists from six U.S. universities and the USDA’s Agricultural Research Service to study the genes that control tolerance to biotic and abiotic stresses, a first step in developing the next generation of improved rice varieties.

Title XII Long-Term Training

Over the past several years there has been a renewed interest in investing in education for agricultural development. In 2003, BIFAD recommended that USAID re-engage and lead U.S.

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6 The CGIAR includes the Africa Rice Center; International Center for Tropical Agriculture; Center for International Forestry Research; International Maize and Wheat Improvement Center; International Potato Center; International Center for Agricultural Research in the Dry Areas; International Crops Research Institute for the Semi-Arid Tropics; International Food Policy Research Institute; International Institute of Tropical Agriculture; International Livestock Research Institute; International Rice Research Institute; International Water Management Institute; World Agroforestry Center; World Biodiversity Center; WorldFish Center.
efforts to help developing countries improve capacity in agriculture and agribusiness. In Fiscal Year 2006 over 200 students received degrees from U.S. universities under the Title XII Program (Table Two).

Table Two. Number of Degrees Awarded Under Title XII Program, Fiscal Year 2006

<table>
<thead>
<tr>
<th>Degrees Awarded</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelors</td>
<td>41</td>
<td>9</td>
<td>50</td>
</tr>
<tr>
<td>Masters</td>
<td>80</td>
<td>49</td>
<td>129</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>21</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>142</td>
<td>68</td>
<td>210</td>
</tr>
</tbody>
</table>

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

Research and education institutions in many developing countries have experienced dwindling science and technology capacity. Also over the past decade, there has been significant policy reform in many developing countries, but with limited institutional reform, leaving many institutions ill-equipped to work in the new policy environment. To ensure sustaining partnerships, it is vital to build institutional capacity to shape and lead policy and research. In Fiscal Year 2006:

- Michigan State’s Trade Capacity Building Services for Developing Country Achievement of Sanitary and Phytosanitary (SPS) Requirements in Croatia Project worked to build the institutional capacity of Croatian regulatory, scientific, and technical institutions including the Ministry of Agriculture, and the Paren Food Laboratory to ensure safe domestic food supplies; protect agricultural plant and animal health, and preserve natural ecosystems.
- The University of Illinois, through the Agricultural Exports and Rural Incomes project, has partnered with Minia University, Fayoum University, and the Ministry of Education of Egypt to strengthen university capacity. In Fiscal Year 2006, the project linked the universities with the private sector; improved course content; introduced new teaching methods; and established External Advisory Committees, Student Career Centers, Extension and Outreach Centers, Academies of Teaching Excellence, and Student Internship Programs.
- Wellesley College partnered with African economists to analyze the potential economic impact of biotech crops in Africa. These policy studies provided critical information to the Common Market for Eastern and Southern Africa’s development of a regional biotechnology policy initiative.

**Title XII Outreach**

The critical role of dissemination is often overlooked. Outreach programs are essential to transfer knowledge between researcher and user. In Fiscal Year 2006, over 19,700 agricultural professionals, producers and students participated in outreach programs including farmer field days and professional workshops (Table Three).
Table Three. Number of Title XII Outreach Participants, Fiscal Year 2006

<table>
<thead>
<tr>
<th>Participants</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professionals</td>
<td>5,000</td>
<td>4,807</td>
<td>9,807</td>
</tr>
<tr>
<td>Producers</td>
<td>5,877</td>
<td>3,998</td>
<td>9,875</td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10,877</td>
<td>8,838</td>
<td>19,715</td>
</tr>
</tbody>
</table>

Other Fiscal Year 2006 outreach activities included:

- Virginia Tech University, with Peanut CRSP funds, partnered with Makerere University in Uganda to decrease exposure to aflatoxin through rural and urban educational programs that make consumers aware of sources of aflatoxin. Traders have been trained to sort out damaged peanuts because of their higher concentrations of aflatoxins. Peanut flour and peanut butter are being prepared using improved HACCP (Hazard Analysis Critical Control Points) protocols that reduce the levels of aflatoxin in these products.

- North Carolina State University with Soils Management CRSP support developed the Nutrient Management System (NuMaSS) and conducted on-farm trials in Bolivia, Brazil, Costa Rica, Ecuador, Honduras, Mexico and Nicaragua. Working with host country partners such as the Nicaraguan National Institute for Agricultural Technology, NuMaSS scientists led a series of farmer field trials. Their recommendations resulted in reducing input costs. Farmers are now adopting NuMaSS guidelines and protocols to determine their fertilizer application needs.

**Title XII Pilots on Emerging Constraints**

USAID works with U.S. universities to help increase the number of international students admitted into the U.S. to pursue advanced degrees.

- Michigan State University is piloting long-term training programs in Zambia and Ghana to improve agricultural competitiveness and to address long-term training constraints that include length of time away from home institutions, increasing cost, and weak institutional capacity.

- The Rutgers University Partnership for Food Industry Development in Natural Products program, links science to increased trade in natural products and economic growth. Working through national agricultural research institutions and Ministries of Agriculture, the program has helped to generate $4,059,757 in trade and produced 1,500 tons of natural products in Ghana, Senegal, Rwanda, Zambia, South Africa, Malawi, Mozambique and Angola. This has increased the incomes of 7,500 people of which the majority is women (74 percent).
Title XII in the Field

In Africa:

- Virginia Tech University is working with its local partners on the Amhara (Ethiopia) Micro-enterprise Development, Agricultural Research, Extension & Watershed Management Project (AMAREW). During Fiscal Year 2006 the project identified two cowpea varieties, two varieties of bread wheat, and one potato variety best adapted for the conditions in the project region which were disseminated to nearly 4,000 households in the region. Techniques to harvest water and rehabilitate degraded hill areas over three seasons are also being adopted by farmers.

- The Michigan State University Food Security Research Project (FS III) has worked with the Ministry of Agriculture and other institutions in Zambia to improve market information. The project also has identified policy constraints and undertaken reforms resulting in improved access to low-cost maize meal, the rescinding of a value-added tax on agricultural inputs, and improved market information for producers.

- Washington State University’s Community Based Management of Chia Lagoon Watershed Project in Malawi works with municipal organization partners to improve livelihoods in the watershed through an integrated community-based approach. To date, the project has improved the conservation and management of soil, forest, and agricultural resources.

- Iowa State University in collaboration with the Southern Africa Development Community (SADC) Seed Security Network (SSSN), the International Center for Research on the Semi-Arid Tropics (ICRISAT), and the Food Agricultural and Natural Resource Policy Analysis Network (FANRPAN) is working on the HED Seed System Development Project in Southern Africa. The project has produced three regional seed agreements; procedure manuals on variety release, seed certification, and seed import/export; an accreditation system for seed companies, laboratories, and individuals; and a quarantine pest list for regional and international seed movement; and Protocols on Plant Breeder’s Rights.

In Asia and the Near East:

- Cornell University’s HED’s Partnership on the Experiential Learning in Globalization and Agriculture Project, a collaboration with Tamil Nadu University (India) and other partners, has enabled Indian students and faculty Internet access to new courses and course materials in agriculture and rural development; food science and value addition; production systems; biotechnology; and extension and rural development. Teams of Cornell and Indian students submitted project papers to senior Indian policy makers to inform government strategies for agribusiness and to facilitate increased access by farmers and agribusiness enterprises to domestic and global markets.

- The University of Illinois’ Human Capacity Development for the Agriculture Sector in Afghanistan Project worked with the Ministry of Agriculture, Irrigation and Livestock to provide training to Afghan agriculturalists on orchard management, animal nutrition, and irrigation practices; and has produced training manuals and region-specific instructional

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7 The Amhara Regional Agricultural Research Institute (ARARI); the Bureau of Agriculture and Rural Development (BoARD); Amhara Credit and Saving Institution (ACSI); Alemaya University; Bahir Dar University; Community Organization Leadership Training for Action (COLTA); Debub University; Environmental Protection, Land Administration and Use Authority (EPLAU); Haramaya University; Mekelle University; Centro Internacional del al Papa (CIP); and the International Livestock Research Institute (ILRI).
materials (in local languages) as part of the “Training-the-Trainer” program. Five staff from Nangarhar University and an additional five from Kabul University completed Master of Science degrees at the Northwest Frontier Province Agricultural University (NWFPAU) in Pakistan and have returned to their universities.

- North Carolina Agriculture & Technology State University scientists have partnered with colleagues on the Agroforestry and Sustainable Vegetable Production in Southeast Asian Watersheds Project. Researchers have undertaken socio-economic household baseline surveys and rapid vegetable market assessment surveys for Vietnam, Indonesia, and the Philippines. The Indonesian team, located at Bogor Agricultural University, developed a comprehensive vegetable manual guide in Bahasa and fabricated and tested a no-tillage planting aid prototype.

- Purdue University and the Agricultural University of Bangalore (India) are collaborating, under HED, on the Partnering with Higher Education in India for Improving Nutritional Quality of Food by Biotechnology Approaches. In Fiscal Year 2006 the project increased the awareness of farmers and policymakers about the potential of biotechnology to improve the nutrient value of food; promoted women’s self-help programs for enterprise creation and management; evaluated tomato genotypes for lycopene and other antioxidants; and developed web-based teaching modules on biotechnology, nutrition, health, and Intellectual Property Rights (IPR).

- Texas A&M University collaborated with provincial Ministries of Agriculture in Iraq on the Agricultural Reconstruction and Development Program. In Fiscal Year 2006, outreach activities resulted in significant increases in the production of rice, tomatoes, potatoes, maize, and wheat. In addition, 1,128 hectares of wheat was certified for production of wheat seed which produced 3,040 metric tons of certified-plus-one seed.

- The University of Wisconsin is collaborating with scientists at Hebrew University and the Volcani Center in Israel; and research institutions in Egypt, Jordan, Tunisia, Lebanon, Morocco, and West Bank Gaza; on the Development of Tomatoes with Combined Resistance to Tomato Leaf Curl Virus Using Both Virus-Derived Resistance and Molecular Marker-Assisted Breeding. This collaboration under the Middle East Research Cooperation (MERC) Program has resulted in the development of molecular markers for resistance genes in tomatoes; establishment of intellectual property guidelines for partners; and training of Middle Eastern students.

In Europe and Eurasia:

- Iowa State University’s Accelerated Growth of Agribusiness Sector for Croatia Project (subcontract by Development Alternatives, Inc.) in partnership with the University of Zagreb has created an electronic agricultural information system that provides agribusiness training and assisted in the establishment of a government, industry, academic and client group advisory board for the agribusiness sector.

- The University of Georgia through the Borlaug Leadership Enhancement Program (LEAP) hosted scholars from Armenia. Three promising young Armenian scientists with leadership potential were connected with University of Georgia mentors in agricultural and environmental sciences to provide them with state-of-the-art training and international experiences.

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8 The University of the Philippines at Los Banos; the University of the Philippines-Open University; De la Salle University, Philippines; Don Bosco Technical College, Philippines; Nong Lam University, Vietnam; mars Incorporated, Vietnam; Bogor Agricultural University, Indonesia; The World Agroforestry Center; and The World Vegetable Center.

9 The “certified-plus-one” generation of seed is generally called “improved” seed.
Louisiana State University’s Partnerships for Food Industry Development (PFID) has trained Ukraine, Moldova, Georgia, and Azerbaijan partner institution professionals in the post-harvest handling of animal products with an emphasis on food safety and quality; harvest technology; increasing market linkages; and developing trade associations.

In Latin America and the Caribbean:

• Auburn University is collaborating with Escuela Agricola Panamericana (Zamorano University) on the Understanding the Knowledge System for Aquaculture Development in Nicaragua: Economics, Institutions, and Markets project. Research showed that increased productivity of individual farms affects the level of productivity of clusters of aquaculture producers, and these clusters affect the level of productivity and overall competitiveness of the Nicaraguan economy.
• Pennsylvania State University and University of Guanajuato faculty have developed an education program to train extension professionals to assist small growers in Mexico through the HED Technology Applications for Production Agriculture (TAPA) project. Building extension capacity in high value horticultural crops has resulted in the successful transfer of technology to producers in the Guanajuato region.
• University of Wisconsin researchers in collaboration with scientists at San Carlos University in Guatemala, Hebrew University and the Volcani Center in Israel under the Cooperative Development Research Program have developed tomato breeding lines with resistance to Ralstonia solanacearum and begomoviruses for Guatemalan and Central American producers; trained Guatemalan scientists (at San Carlos University) in molecular methods for marker-assisted breeding and characterization of pathogen biotypes; marketed four new begomovirus resistant tomato hybrids via GenTropic Seeds (under a biological licensing agreement with San Carlos University); and developed intellectual property guidelines.

II. Programs and Activities Over the Next Five Years

In Fiscal Year 2006, USAID’s Offices of Agriculture and Natural Resources Management in the Bureau for Economic Growth, Agriculture & Trade completed a research priority setting exercise that will impact Title XII programs over the next five years. The exercise:

• Identified a joint agriculture and natural resources management research framework for the offices that will address Administration mandates, global development needs, EGAT priorities, and U.S. comparative advantage; and
• Proposed mechanisms for implementation of this framework that include (but are not limited to) a new Collaborative Research Support Program (CRSP) research portfolio.

To inform the priority setting exercise, EGAT commissioned the USDA Agricultural and Natural Resources Management Research Priorities Desktop Review to identify key agricultural research areas. An intra-agency working group was then convened to align the desktop review findings with USAID’s evolving strategic direction and to draft a research framework. Consultations with stakeholders provided feedback on drafts and the research framework was finalized in September 2005.

The framework has four research themes:
• Staple Food Systems for Increased Incomes: A systems (field to fork) approach with a focus on increasing productivity, processing, and trade in domestic and regional markets to meet food needs and generate income for producers and processors.

• Higher Value Products for Diversified Incomes: A value chain approach promoting increased diversification of production and increased returns to producers in domestic, regional and international markets.

• Agricultural and Natural Assets for Maintenance and Regeneration of the Resource Base: A systems approach addressing resource management across multiple-use landscapes that conserves ecosystem functions and allows for long-term health and productivity of the resource base.

• Policy, Markets, Trade and Governance for Pro Poor Growth: A body of research on policy issues, market access and institutional innovations that make agriculture and natural resource management interventions pro poor.

After finalizing the research framework in 2005, USAID consulted U.S. stakeholders and BIFAD and its sub-committee, the Strategic Partnership for Agriculture Research and Education (SPARE), on the proposed CRSP portfolio. Over the next six months, the CRSP portfolio was finalized. In February 2006, the Offices had in place the research framework and portfolio that will direct their research investments for Fiscal Years 2006-2010.

The New CRSP Portfolio (detailed below) is being phased-in over four years with the first three CRSP agreements awarded in 2006: Assets and Market Access; Aquaculture & Fisheries; and Sorghum, Millet and Other Grains. In Fiscal Year 2007, it is expected that awards will be made for the Dry Grain Pulses and Peanut CRSPs. Other CRSP research themes in the portfolio could be modified in the future as needed as USAID adjusts its priorities and programs under the new Foreign Assistance Framework, and as development needs and opportunities evolve. Decisions relating to Fiscal Year 2011 programming will not be made until after the next review of research priorities, which is not expected for several years.

The New CRSP Portfolio

In implementing this new portfolio, USAID is working with its U.S. university partners as they elaborate a global research program that clearly targets agriculture constraints identified by development practitioners and local stakeholders. To maximize the impact of knowledge generated and to better program scarce resources, it is expected that a high degree of interaction among the CRSP Management Entities will take place. Research priorities and development constraints identified by one CRSP will inform research activities in others. Core Program Components provide a consistent approach across the portfolio and help development practitioners identify common constraints and practices. Focal Areas for Development Results target research towards ultimate impact.

USAID/EGAT funding supports the primary research conducted under the CRSP Leader Award10. Dedication of core funds ensures adequate resources to support a global research program. Recognizing the need for additional flexibility to address field-identified development constraints and to provide technical expertise to USAID, each Management Entity is required to

10 CRSP awards are Leader with Associates (LWA) Cooperative Agreements. The LWA mechanism streamlines the process through which EGAT offices, Washington bureaus, and field missions can access expertise through the CRSPs while ensuring direct financial and technical reporting to the operating units that provide funding. Associated Awards many access research, training and institutional strengthening assistance related to both primary and secondary research topics.
demonstrate the capacity to address a broader range of research and capacity development needs in secondary research areas.

**Assets & Market Access CRSP** – Many of the rural poor are heavily dependent on the natural resource base and their own labor. Yet even when presented with economic opportunity, many individuals and households in rural areas cannot engage. Often this is due to a lack of resources to take advantage of opportunities. In other cases, repeated exposure to various shocks has left households and whole communities too vulnerable to take economic risks. This CRSP will address these development constraints through targeted research on policies, programs, and practices that broaden poorer rural and agricultural households’ access to input, factor (e.g., land, labor) and output markets. It will explore how poorer rural and agricultural households acquire, protect and utilize assets such as land, water, livestock and their own labor power, as well as how to overcome constraints that limit their ability to adopt promising technologies and participate in economic opportunities.

**Aquaculture & Fisheries CRSP** – Products from aquaculture and capture fisheries provide a vital source of food, income, employment, trade and economic well-being in developing countries. These products are the primary source of protein for some 950 million people worldwide and represent an important part of the diet of many more. To help meet future demand for aquaculture and capture fisheries, this CRSP will undertake innovative research, training and outreach activities designed to develop and disseminate technologies, tools, practices, methodologies and policies that will help prevent further degradation of ecosystem health; sustainably increase aquaculture production; maintain and restore capture fisheries productivity; prevent and reduce poverty among subsistence and small-scale fishers and farmers; and protect valuable aquatic biodiversity.

**Sorghum, Millet & Other Grains CRSP** – Grain crops provide the majority of starch, fat, protein, vitamins and minerals for the world’s population. For poorer people these staple food crops are generally a key source for these life-sustaining nutrients. This CRSP will research the production, marketing, processing, and utilization of staple food crops to improve the well-being of farmers, rural communities, and the developing countries where these crops are of principal importance to smallholders. The research focus will be on sorghum and millet, but will not exclude work related to corn, wheat and rice, particularly in production systems where all crops are present. Research on other grains of regional and local importance will be a secondary research focus. Because of its focus on food systems of importance in areas of frequent drought and other adverse conditions, there is a strong potential linkage between this CRSP and USAID’s work in fragile and marginal areas.

**Peanut CRSP** – Peanuts (groundnuts, earthnuts) occupy an important place in the world food economy and are an important source of protein and mineral nutrients for poor households. These crops are traditional staple foods and dependable cash crops for smallholders because of their ability to adapt to marginal soil conditions. Peanuts also provide valuable edible oil and feedstock for a large number of processed food. This CRSP undertakes research addressing the production, quality, processing, marketing, and utilization of staple peanut species to improve the well-being of farmers, rural communities, and the developing countries where they are of principal importance to smallholders. The primary research focus of the CRSP will be on constraints, with similar types of groundnuts of regional and local importance forming a secondary research focus.

**Dry Grain Pulses CRSP** – Grain pulses (legumes) also occupy an important place in the world food economy. These crops are traditional staple foods, rich in protein, complex...
carbohydrates, and essential mineral nutrients. Legumes are dependable cash crops for smallholders because of their adaptation to marginal soil conditions. This CRSP will undertake research production, quality, processing, marketing, and utilization constraints of staple pulse species to improve the well-being of farmers, rural communities, and the developing nations in which these crops are of principal importance to smallholders. Research will focus on beans, cowpeas, chickpeas, lentils, fava beans, and dry peas. Legumes of local and regional importance including mung beans, pigeon peas, lima beans, adzuki bean, and indigenous legumes form a secondary research focus.

Horticulture CRSP – There is strong market growth and income earning potential in horticultural and specialty crops. Production and trade in these crops promises to provide countries with the ability to meet domestic food needs, to diversify income sources, and to improve human health and household incomes. This CRSP will undertake research addressing the development constraints to the marketing of vegetables, fruits, and specialty crops to increase the income potential of both small and medium producers. The research program will encompass the entire “production through marketing” system with a focus on capacity building within the value chain which emphasizes the market. The primary research focus will be on constraints to marketing vegetables, fruits, cocoa, coffee, and other high value crops for which the selected region has competitive advantage. A secondary research focus will be on constraints to marketing non-timber forest products, natural products, and medicinal plants.

Livestock and Poultry CRSP – Animal agriculture is the largest single sector of agricultural economies in most developing countries, accounting for up to 50 percent of agricultural GDP. On a global basis, foods of animal and fish origin provide about 17 percent of the energy and more than 35 percent of the dietary protein for humans. This CRSP will undertake research addressing ecosystems (i.e., improving pasturelands and water sources, etc.) related to animal production; strengthening community asset building through the animal product value chain; animal health and animal-source food safety; value added animal products; and protection and enhancement of rangeland resources. The primary research focus will be on livestock and poultry. A secondary research focus will be on animal-source foods of regional and local importance.

Integrated Pest Management (IPM) CRSP11 – Losses due to insects, diseases, weeds, nematodes, animal parasites, and other agricultural pests are a major constraint to improved agricultural productivity. This CRSP will research pest management constraints to the sustainable production of safe food supplies; increased access to domestic and export markets; and increased incomes for small producers. The CRSP also conducts research on policies to encourage IPM practices and gender equity resulting from adoption of pest management practices. Primary research focuses on constraints identified by thorough participatory appraisals at each research site. These appraisals include producers, consumers, local agricultural and natural resource management specialists, scientists and host government officials. Secondary research focuses on topics of concern to USAID Missions and host country stakeholders, e.g., migratory pests, invasive pest species, training needs, pesticide use issues, and export requirements.

11 Review of the Integrated Pest management CRSP will take place during its fourth year (2008). In addition to evaluating performance, the review will determine whether the new commodity-oriented CRSPs have taken on substantial IPM issues related to their targeted commodities. The review will also inform USAID on the need for a stand alone IPM CRSP that broadly deals with IPM issues apart from the IPM activities of the commodity-oriented CRSPs.
Sustainable Agriculture and Natural Resources Management (SANREM) CRSP\textsuperscript{12} – Multiple pressures are threatening the world’s capacity to provide adequate food and livelihoods for future generations. This CRSP undertakes research that mobilizes science and technology to foster innovation and improvements in the social, economic and environmental sustainability of agricultural and natural resource management. It identifies practices that lead to improved livelihoods, expanded trade opportunities and strengthened capacities for stakeholders. Primary research addresses issues affecting the long-term viability of agriculture and natural resources management across multiple spatial scales (e.g., field/farm, ecosystem) in each research site. Research topics have been identified through a participatory process that includes a range of local stakeholders and organizations. Secondary research focuses on sustainable agriculture and natural resources management issues identified by USAID Missions and their host country partners.

Soil, Water & Ecosystem Services CRSP\textsuperscript{13} – Over the past 50 years, humans have changed agricultural and natural ecosystems more rapidly and extensively than at any comparable period of human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber, and fuel. The changes made have contributed to substantial gains, but at the cost of the degradation of many agro-ecosystems. This CRSP will undertake research that links plot and farm productivity with agro-ecosystem resilience. The primary research focus will identify tools, practices and methodologies that promote sound management of natural resources in agriculture, integrating the smaller spatial scale (field/farm level) with interactions at the ecosystem level. The CRSP will lead in integrating research and consolidating knowledge regarding soil and water productivity, conservation, and management across the new CRSP research portfolio. Secondary research will address resource access and rights as well as research on ecosystem services.

New CRSPs and Continuing Intellectual Leadership

As each new CRSP comes on board, it will contribute to intellectual leadership within USAID on its topic area. The Management Entities (lead universities) will provide the Agency with annual lessons learned and best practices from their programs’ research. In addition, each lead university will identify a cross-cutting agricultural constraint (e.g., soil mining) that is being examined by more than one CRSP. For the first time, the CRSPs will share research results with each other and integrate lessons learned and best practices across the CRSPs for dissemination to the Agency and broader stakeholder community. It is expected that the next review of research priorities and the CRSP research portfolio will take place in Fiscal Year 2009 to direct Fiscal Year 2011-2015 investments\textsuperscript{14}

\textsuperscript{12} As of September 2007, review of the Sustainable Agriculture and Natural Resources management (SANREM) CRSP during its fourth year (2008) will only evaluate the performance of the CRSP Management Entity and the research program over the first four years.

\textsuperscript{13} As of September 2007, a collaborative research support program in the areas of soils, water and ecosystem services is in a conceptual stage. A number of factors affecting its possible scope and timing are at play, including Congress’ continued interest in a separate Water CRSP, available funds, and other priority needs as determined by Congress and USAID. The review of the SANREM CRSP in 2008, which includes some aspects of soils, water and ecosystem services, will help determine the eventual scope and need for a new CRSP in these areas.

\textsuperscript{14} When USAID awards a CRSP Management Entity to a university, the initial Agency commitment is for five years. A five-year continuation may be approved based on three criteria; (1) a record of good performance during the first five-year period; (2) availability of Agency funding; and (3) continued relevance of the CRSP to the overall Agency portfolio and development priorities.
III. Summary of BIFAD Activities

BIFAD was authorized in 1975 under Title XII – Famine Prevention and Freedom from Hunger (P.L. 94-161) – of the Foreign Assistance Act of 1961, as amended. BIFAD’s primary roles are to advise and assist the USAID Administrator on agricultural and food security issues including the administration, implementation, and monitoring of U.S. university-led Title XII activities.

BIFAD held four meetings in Fiscal Year 2006 - its 145th on October 12, 2005 in Des Moines, Iowa, the 146th on February 2, 2006, 147th on May 11, 2006, and 148th on July 6, 2006 in Washington, D.C.

During the year, BIFAD advised USAID on:

- the proposed mobilization of U.S. universities and their partners through Title XII mechanisms including the CRSPs to assist the field in addressing “critical development constraints”;
- USAID’s long-term training pilots in Africa;
- university efforts to implement and comply with the Agency’s participant training database and tracking system (TraiNet) and J-1 visa requirements; and
- the importance of horticulture, noting this as a gap in USAID’s global research program.

BIFAD reviewed and concurred with USAID’s proposed implementation of a new agricultural research program that will include the following CRSP portfolio:

- Sorghum, Millet & Other Grains (compete 2006)
- Peanut (compete 2006)
- Aquaculture & Fisheries (compete 2006)
- Assets & Market Access (compete 2006)
- Dry Grain Pulses (compete 2007)
- Horticulture (compete 2007)
- Global Livestock & Poultry (compete 2008)
- Soil, Water and Ecosystem Services (to be determined)

BIFAD also advised USAID to consult with the Board on the status of two current CRSPs after the completion of their program reviews in Fiscal Year 2008:

- Integrated Pest Management
- Sustainable Agriculture and Natural Resources Management

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**BIFAD Members**

- M. Peter McPherson, Former President, Michigan State University, BIFAD Chair
- Catherine Bertini, 2003 World Food Prize Laureate, Professor, Syracuse University
- Allen Christensen, Director Ezra Taft Benson Institute, Brigham Young University
- William DeLauder, President Emeritus, Delaware State University
- Anthony Laos, President, Stauffer Seeds
- Tim Rabon, President, Mesa Verde Enterprises
- Sharron Quisenberry, Dean, Virginia Polytechnic Institute and State University

**SPARE Secretariat**

- John T. Rifenbark, Title XII Federal Officer, U.S. Agency for International Development

**SPARE Members**

- Winfrey Clarke, Virginia State University, SPARE Chair
- Ray Miller, University of Maryland
- Robert Paarlberg, Wellesley College & Harvard University
- Sandra Russo, University of Florida
- Jane Gleason, Development Alternatives, Inc.
- John Thomas, U.S. Agency for International Development
- Jeff Hill, U.S. Agency for International Development
- David Hess, U.S. Agency for International Development

**SPARE Observers**

- John R. Vreyens, University of Minnesota (for the Board on Agriculture of the National Association of State Universities and Land Grant Colleges)
- Anthony Laos (for BIFAD)

**SPARE Secretariat**

- Susan Thompson, U.S. Agency for International Development
In Fiscal Year 2006, BIFAD also commissioned Dr. Richard Bissell\textsuperscript{15} to recommend how the Board could enhance communication between USAID and the U.S. university community and solidify a common understanding of the Title XII legislation. At the May meeting, Dr. Bissell recommended the following actions to BIFAD:

- Need to engage the USAID Administrator in agriculture issues
- Need to strengthen USAID’s expertise in agriculture
- Need to rebuild the constituency behind agriculture as an engine for development
- There should be a broader participation in Title XII across USAID
- Universities need to demonstrate their comparative advantages

Finally, the Board encouraged the Agency to continue its support through an Intergovernmental Personnel Act (IPA) with the U.S. universities for a senior advisor for university relations and agricultural research, outreach and training. Dr. L. George Wilson, Professor, College of Agriculture and Life Sciences, North Carolina State University has been recruited and will be located in USAID’s Office of Agriculture, Bureau for Economic Growth, Agriculture and Trade for the next two years.

**Strategic Partnership for Agricultural Research and Education (SPARE)**

To carry out its mandate, BIFAD draws on the efforts of its working subcommittee, the Strategic Partnership for Agricultural Research and Education (SPARE). SPARE undertakes strategic planning, program conceptualization, and monitoring/evaluation. During Fiscal Year 2006 SPARE:

- Made recommendations to BIFAD on USAID’s proposal for implementing the new CRSP research portfolio including:
  - The Sustainable Agriculture and Natural Resources Management and Integrated Pest Management CRSPs be evaluated during their fourth year.
  - The Bean and Cowpea CRSP should be competed.
  - Each research program should include the following components: systems approach; social, economic and environmental sustainability; capacity building and institutional strengthening; outreach, dissemination and adoption; and intellectual leadership.
  - The intellectual leadership component should include one or more of the following Focal Areas for Development Results: improving nutrition and health; maximizing water and soil quality and productivity; broadening market access; mitigating post-harvest constraints; enhancing productivity and livelihoods in marginal areas; advancing integrated pest management practices; increasing incomes; improving food quality, processing, and food safety.
  - Agency limited substantial involvement should include: approval of annual implementation plans; approval of key personnel (CRSP Director); CRSP Management Entity and Agency collaborative participation in the selection of advisory members; USAID participation as member of technical committees; Agency participation in the selection of sub-award recipients with a voice and a vote but no veto; USAID concurrence on the monitoring and evaluation plan.
- Reviewed the status of USAID’s prime and sub-award contracting mechanisms and advised that USAID’s Office of Acquisitions and Assistance (OAA) structure its key sub

\textsuperscript{15} Dr. Bissell is the Executive Director of the Policy and global Affairs Division, National Academy of Sciences and a former senior official at USAID.
contractor clause pilot to ensure that the full range of prime and sub contractors, including U.S. universities, are captured by the pilot.