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PRESIDENTIAL INITIATIVE TO END HUNGER IN AFRICA

ANNUAL REPORT 2006



INCREASING RURAL GROWTH AND INCOMES
THROUGH AGRICULTURAL TRANSFORMATION

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FOREWORD

The Presidential Initiative to End Hunger in Africa, focused on smallholder-based agriculture, was designed to rapidly increase agricultural growth and rural incomes in Sub-Saharan Africa by harnessing the power of new agricultural production and processing technologies; improving the efficiency of agricultural trade and market systems; building the capacity of community and producer-based organizations; and integrating vulnerable groups and countries into sustainable development processes.

IEHA is the vehicle through which the U.S. Government meets its G-8 commitments to support implementation of the Comprehensive Africa Agricultural Development Program (CAADP), the most ambitious agricultural reform effort ever undertaken in Africa.

Evidence from the 2006 IEHA Annual Report indicates that the Initiative is achieving significant and robust results. In 2006, the Initiative impacted the lives of nearly 10 million Africans, helping spur \$812 million of international trade in agricultural products, and transferring new technologies to more than 520,000 farmers. Moreover, the Initiative has improved competitiveness, increased rural incomes, and created jobs.

Improved monitoring and evaluation systems and investments in strategic analysis and knowledge systems are building African capacity to produce data and analysis that now allow tracking of important trends such as trade flows, agricultural productivity, and policy change at the project, country, regional, and continent levels. We are also able to monitor changes in rural income at the national level. Evidenced-based performance data enable us to do better reporting to Congress as well as provide us the ability to compare experience and lessons learned across countries. Moreover, strategic changes and the performance of the agricultural sector can also be tracked, and our capacity to measure our contribution to those overall trends is being improved.

I am proud to present the 2006 IEHA Annual Report. With this report, we are able to improve the Agency's decision making and build a framework for transparency and mutual accountability with our African partners. The results laid forth in this year's IEHA Annual Report clearly demonstrate the value of an integrated approach to investments in agriculture, and the impacts that can be achieved on transformation, growth, and poverty reduction, and points the way to self-sustaining change in Africa.

Jeff Borns
Director
Office of Sustainable Development
USAID Africa Bureau

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ACRONYMS

ADRA	Adventist Development and Relief Agency
AGOA	African Growth and Opportunity Act
AGP	Appropriate Germplasm Project
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
AU	African Union
BDS	Business development services
CAADP	Comprehensive Africa Agriculture Development Program
CILSS	<i>Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel</i> (Permanent Interstate Committee for Drought Control in the Sahel)
COMESA	Common Market for Eastern and Southern Africa
CORAF/WECARD	West and Central African Council for Agricultural Research and Development (CORAF is the French acronym for <i>Conseil Ouest and Centre Africain pour la recherche et développement agricoles</i>)
CRSP	Collaborative Research Support Program
EAGC	East Africa Grain Council
ECABIO	Eastern and Central Africa Biotechnology and Biosafety Program
ECAPAPA	Eastern and Central Africa Program for Agricultural Policy
ECOWAS	Economic Community of West African States
EGAT/AG	Bureau for Economic Growth, Agriculture, and Trade/Office of Agriculture (USAID)
EGAT/ESP	Bureau for Economic Growth, Agriculture, and Trade/Office of Environment and Science Policy (USAID)
ESADA	Eastern and Southern Africa Dairy Association
EU	European Union
EurepGAP	Euro-Retailer Produce Working Group Good Agricultural Practices
FAAP	Framework for African Agricultural Productivity
FANRPAN	Food, Agriculture, and Natural Resource Policy Analysis Network
FARA	Forum for Agricultural Research in Africa
FASDEP	Food and Agriculture Sector Development Program
FFP	Food for Peace (USAID office)
FTF	Farmer-to-Farmer
FY	Fiscal year
G-8	Group of Eight (Canada, France, Germany, Italy, Japan, Russia, UK, and US)
GDP	Gross Domestic Product
GINA	Gender Informed Nutrition and Agriculture Alliance
IARC	International agriculture research center
ICT	Information, communication and telecommunications
IEHA	Presidential Initiative to End Hunger in Africa

IFDC	International Fertilizer Development Center
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
INSAH	<i>Institute du Sahel</i>
IR	Intermediate Result
KACOFA	Kapchorwa Commercial Farmers' Association
MDG	Millennium Development Goal
M&E	Monitoring and evaluation
MISTOWA	Network of Regional Market Information Systems and Traders' Organizations of West Africa
MOU	Memorandum of understanding
NARI	National agricultural research institute
NEPAD	New Partnership for Africa's Development
OFSP	Orange-fleshed sweet potatoes
PFP	Partial Factor Productivity
PIVA	Partner Institution Viability Assessment
PPP	Purchasing power parity
RATES	Regional Agricultural Trade Expansion Support
REC	Regional Economic Community
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
SADC	Southern African Development Community
SAKSS	Strategic Analysis and Knowledge Support System
SO	Strategic Objective
TIA	Agricultural Household Income Survey (Portuguese acronym)
TFP	Total Factor Productivity
UK	United Kingdom
US	United States
USAID	United States Agency for International Development
USG	United States Government
VAT	Value-added tax
WFP	World Food Program

EXECUTIVE SUMMARY

The Initiative to End Hunger in Africa (IEHA) is succeeding. It is working effectively with African leaders in a global partnership that is assisting rural households, firms, and key institutions to:

- Increase income from agriculture;
- Gain market access and increase agricultural trade;
- Reduce food insecurity; and
- Build capacity.

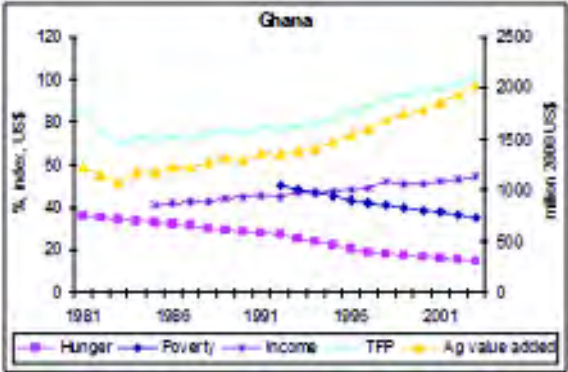
In 2006, IEHA concentrated on two key countries in each of three regions: Uganda and Kenya in Eastern Africa; Mozambique and Zambia in Southern Africa; and Mali and Ghana in West Africa. These countries are leaders in policy reform, public investment, and government commitment to agricultural growth and poverty reduction. They are representative of the key economic and agricultural characteristics of their regions. These countries also have the greatest potential for rapidly influencing regional agricultural productivity and economic growth through trade and technology diffusion. In addition, IEHA works through the U.S. Agency for International Development's (USAID's) regional platforms in East, West, and Southern Africa to address regional constraints to agricultural trade and to technology development and dissemination.

For the rural poor, who are the majority of Africans, increasing prosperity quickly translates into improved diets, better education, and healthier families. In Ghana, Uganda, and Mozambique, chronically food-insecure populations being assisted reduced their need for relief assistance.

IEHA SUCCEEDING AT BUILDING CAPACITY AND INCREASING EARNINGS, MARKET ACCESS, AND FOOD SECURITY

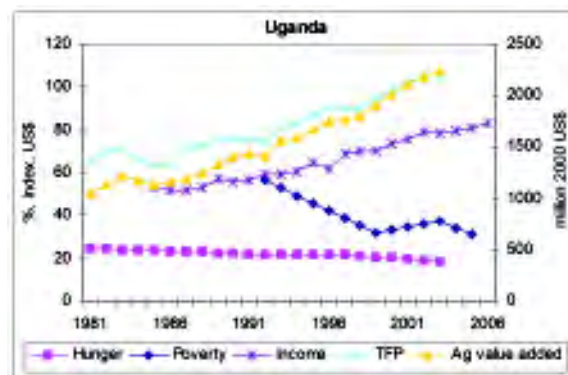
IEHA is working with rural households in Africa to increase their incomes through increases in productivity all along the value chain—productivity that is the foundation of agricultural transformation. Indeed, evidence contained in this report, such as increasing smallholder sales in domestic and regional markets, suggests that structural change—agricultural transformation—is beginning to take place in several African countries. This agricultural transformation stimulates broad-based economic growth, bringing significant benefits to rural areas. By combining improvements in productivity with enhanced market access, IEHA promotes increased commercialization of smallholders. The additional incomes they receive from sales of their output reduce poverty and food insecurity and stimulate rural growth.

At the national level, trends in productivity, household income, poverty, and hunger are clearly showing improvement. In Ghana and Uganda, there is a consistent pattern of increasing agricultural Total Factor Productivity (TFP),¹ agricultural growth, and economic growth, increasing real household incomes and decreasing poverty and hunger. This suggests that government policies and investment strategies, backed by development partners, are having the desired impacts.



¹ Agricultural TFP is the ratio of agricultural value-added to the total value of all inputs used in production.

Kenya and Zambia also show a consistent pattern, although here the situation is discouraging. With weak or no growth in agricultural TFP, agricultural and economic growth have been relatively low, and erratic in the case of Zambia. Real household incomes have stagnated or declined; in Kenya, poverty has increased.



Recent experience in Mali is positive. Since the early 1990s, total agricultural production has grown steadily and at high rates. Household income has also increased modestly, but with poverty and hunger decreasing much slower than in other IEHA countries. While Mozambique has been experiencing high agricultural and economic growth rates, data were inadequate to assess long-term trends in income and poverty. The limited data that do exist suggest improving trends in income and poverty. Hunger, on the other hand, has declined at one of the fastest rates of all IEHA countries.

In FY 2006, more than 9.6 million individuals in rural Africa directly benefited from IEHA. For example, it helped:

- more than a half million smallholders bring more than 850,000 hectares under new technologies;
- more than 8,300 producer and trader organizations and an additional 1,331 women’s organizations boost their competitiveness;
- producers, exporters, and their associations to meet international standards and access markets;
- the Ministry of Agriculture in Zambia to begin implementation of the ministry’s Agricultural Marketing Development Plan engaging the private sector in food and input markets;
- increase sales by smallholders to over \$190 million—more than double those of the previous year; and
- maize farmers in Kenya, Mozambique, and Uganda to realize significant increases in profitability.

In FY 2006, the USAID Office of Food for Peace, contributing to IEHA, worked with more than 1.2 million vulnerable households to build assets that help them to manage through shocks and reduce food insecurity. In Mozambique, USAID provided training in improved planting practices, storage techniques, soil fertility, and sustainable agriculture, as well as erosion control and controlled burning. Final evaluation results showed that farm households in this area were able in 2006 to feed themselves at adequate levels for 10.2 months on average, compared to 8.8 months on average in 2002. In Ghana, USAID has over the past five years assisted 30,000 farmers (with 300,000 beneficiaries) increase crop yields through the use of higher-yielding varieties, row planting, manure and fertilizer application, supply of agricultural inputs, and creation of linkage to markets. As a result, the average length of food shortage has been reduced from four months per year in 2001 to 1.3 months in 2006. During the same period, the prevalence of underweight children, a key indicator of hunger, decreased from 30 percent to 18.9 percent.

PRIVATE SECTOR STRATEGICALLY IMPORTANT TO AFRICAN AGRICULTURE

Increased domestic and foreign investment in African agricultural is essential to drive the transformation process. IEHA is actively supporting private agribusiness development in Africa, as evidenced by 900 public-private partnerships supported in 2006. IEHA is engaging at the local level to develop and strengthen farmer

and trader organizations that can sustainably serve their members to increase productivity and trade and advocate for improved policies. With better access to regional and international markets, the African private sector is responding and reaping the gains to be had from new market opportunities created by IEHA. About 79,000 assisted enterprises accessed business development services. IEHA

Output Indicator	Target for FY 2006	Total for FY 2006	Percentage of Target Achieved
Number of producers' organizations, water users' associations, trade and business associations, and community-based organizations assisted by IEHA	6,087	8,376	135%
Number of women's organizations/ associations assisted by IEHA	806	1,331	157%
Number of agriculture-related firms	1,770	2,524	140%

partners are working with producers, exporters, and their associations in Kenya, Ghana, Mali, Uganda, and Mozambique to help them meet international standards, often required to enter export markets.

AFRICAN LEADERSHIP AND COMMITMENT TO REFORM TAKING ROOT

African leadership and commitment to agricultural reform is taking root through the Comprehensive Africa Agriculture Development Program (CAADP), the most extensive reform process ever launched in Africa. African Heads of State and Government have clearly called for an agricultural revolution aimed at creating the jobs and income needed to lift their citizens out of poverty. IEHA is supporting these African-led efforts. IEHA is collaborating with and strengthening African organizations that are leading and managing the agricultural development agenda in Africa. It works with key Regional Economic Communities—the Common Market for Eastern and Southern Africa (COMESA), the Economic Community of West African States (ECOWAS), and the Southern African Development Community (SADC)—that have been designated to lead the implementation of CAADP. IEHA's African partner organizations have made significant strides. COMESA and ECOWAS have put systems in place to develop regional and national CAADP compacts by the end of FY 2007, strengthening and aligning ongoing investment plans.

IEHA DELIVERING ON USG COMMITMENTS AND WORKING WITH PARTNERS TO IMPROVE EFFECTIVENESS OF AID FOR AGRICULTURAL DEVELOPMENT

IEHA is a primary vehicle for U.S. Government (USG) efforts to alleviate hunger driven by pervasive poverty in Africa. Under USAID leadership, IEHA contributes to the U.S. foreign assistance goal of transformational diplomacy and development through agricultural transformation.² IEHA is committed to the principles of the Paris Declaration, namely, harmonization, alignment, and managing for results; strengthening partner countries' national development strategies; helping to strengthen partner countries' capacities; carrying out diagnostic reviews; and harmonizing worldwide humanitarian and development assistance within growth and poverty reduction agendas. IEHA is delivering on the Group of Eight and USG commitment to build global, regional, and national partnerships with other development partners to support the CAADP process.

² See section 6 for a discussion of economic and agricultural transformation and how IEHA is promoting it.

IEHA IS BUILDING IMPORTANT REGIONAL DYNAMICS FOR GROWTH

IEHA is directly contributing to increasing the regional dynamics necessary for accelerated agricultural growth to take place—e.g., expanding the flow of technology across countries, increasing access to regional markets, and improving the flow and use of knowledge and analysis, and harmonizing policy. The investments at the regional (multi-country) level are paying off by building regional dynamics for agricultural growth: shared development and dissemination of technology, growing regional markets, and harmonized policy. In the research arena, IEHA has been working with and building capacity at the Forum for Agricultural Research in Africa. USAID programs in all three subregions of Africa made significant progress in working with regional economic communities in developing and implementing regional policies. A good example is seed related policy. In Southern Africa, three seed harmonization agreements were finalized and presented for approval by the Permanent Secretaries of the Ministries of Agriculture and the Ministries of Trade for each SADC country. Through USAID/West Africa's support for CILSS³, a regional framework for seed regulation has been approved by the CILSS Council of Agriculture Ministers. In East Africa, seed harmonization agreements have been reached in Kenya, Uganda, and Tanzania and are now being extended to other COMESA member countries. Linking regional economic policy to agricultural technology, IEHA has facilitated the adoption of regional action plans by COMESA and ECOWAS for policy cooperation in the regulation of agricultural biotechnology. On trade, in East Africa, a memorandum of understanding was signed by dairy product regulators in Rwanda, Kenya, Tanzania, and Uganda to apply common standards for hygienic milk handling equipment and for the certification of traders, facilitating cross-border recognition of certified traders. And the assistance to private sector regional trade associations for coffee, cotton, grains, dairy, and livestock has directly led to increased international and regional trade and investment. Exports of targeted agricultural products to intra-regional destinations reported by all USAID Missions participating in IEHA in FY 2006 were \$435 million, compared to \$377 million in FY 2005.

CONCLUSION

In 2006, IEHA met or exceeded most of its performance targets. It achieved this through the dedication of hundreds of public and private partners committed to the common objective of increasing rural incomes to reduce poverty and hunger of rural households, who are the heart of Africa.

³ *Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel* (Permanent Interstate Committee for Drought Control in the Sahel)

I. INTRODUCTION TO THE INITIATIVE

The Presidential Initiative to End Hunger in Africa (IEHA) is part of the response to one of the greatest challenges of our time—alleviating hunger driven by pervasive poverty in Africa. This annual report for IEHA describes the initiative’s activities and progress made in FY 2006. It reports on actions, trends, and results achieved at Africa-wide, regional, country, and local levels by IEHA’s country, regional, and central programs, all of which contribute to the U.S. foreign assistance goal of **transformational diplomacy and development**.⁴ Increases in productivity all along the agricultural value chain, in combination with other IEHA achievements, are helping Developing Countries become Transforming Countries and strengthening their partnerships with Transforming Countries. This agriculture-led economic transformation model is based on the thesis that increases in rural income will have the positive spin-off effects of expanding economic growth, reducing poverty, and eliminating hunger.

More specifically, IEHA’s **goal** to reduce hunger in Africa by half by 2015 is in line with U.N. Millennium Development Goal (MDG) #1; a parallel goal (also in line with the MDGs) is to halve poverty by the same year.⁵ African leaders themselves have high ambitions for agriculture, expecting it to deliver the wealth and economic growth needed to reduce poverty, especially in rural areas where many of the poor reside. To this end, in 2003, African Heads of State and Government launched the Comprehensive African Agricultural Development Program (CAADP). IEHA, whose activities began that same year, is a direct and ambitious response to the African vision. Its Strategic Objective (SO) is to increase rural income in order to reduce both poverty and hunger. Its market-oriented and smallholder-based growth strategy reflects the belief in the agriculture sector’s potential to meet this challenge. Under U.S. Agency for International Development (USAID) leadership, IEHA supports efforts that:



- Build economic governance and global partnerships that can effectively create the conditions for agriculture to flourish;
- Exploit the power of markets, especially regional markets, to create regional growth and stimulate private sector agribusiness investments;
- Harness science and technology to support smallholder agriculture and stimulate employment and investment in the agricultural sector; and
- Meet the needs of the vulnerable, especially the persistently poor and hungry.

IEHA’s focus is on smallholders, those in the rural areas who are both poor and have the capacity to improve their situation. Programs that target smallholder-based agricultural growth give the hungry access to food by both raising their incomes and reducing the price of food.

⁴ See section 6 for a discussion of economic and agricultural transformation and how IEHA is promoting it

⁵ MDG #1 is to “Eradicate extreme poverty and hunger.” Target 1 is to “Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day. Target 2 is to “Halve, between 1990 and 2015, the proportion of people who suffer from hunger.” (U.N. Food and Agriculture Organization). Table 7 of this report shows recent poverty rates in sub-Saharan Africa.

At the individual or household level, the relationship between increased income and reduced poverty and hunger is clear. At the aggregate level, sustainable increases in income by large numbers of smallholders, and by the owners of enterprises where smallholders spend their increased income, go a long way toward eliminating hunger and stimulating broad-based growth in rural areas. For example, recent research by Smith and Haddad (2000) found that increases in income (a basic determinant) have a very strong effect on child malnutrition.⁶ Increased rural income also has positive spillover effects on poverty throughout the economy—this is significant because three quarters of Africa’s malnourished children are found in households dependent on small farms for their livelihoods.

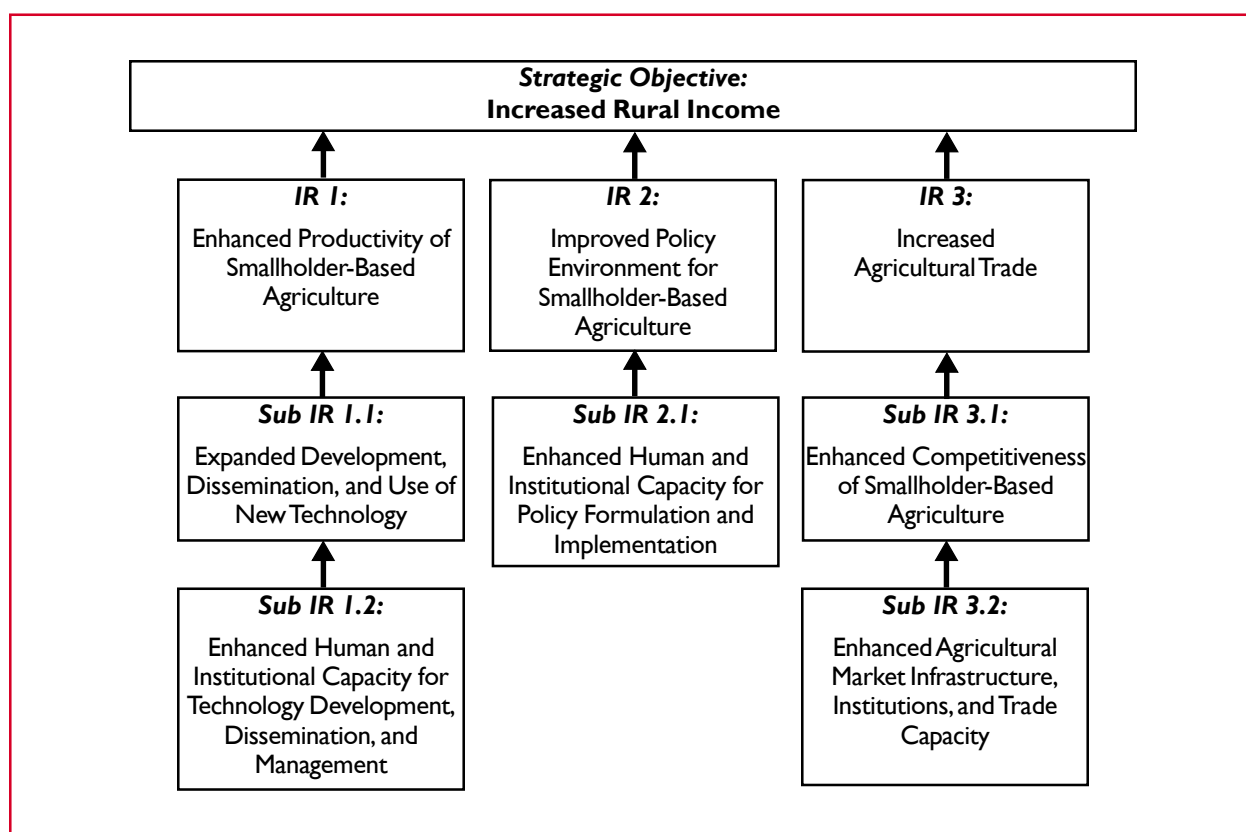
A STRATEGIC FRAMEWORK FOR IEHA

Contributing to IEHA’s SO “Increased rural income” are three Intermediate Results (IRs):

1. “Enhanced productivity of smallholder-based agriculture”
2. An “improved policy environment for smallholder-based agriculture”
3. “Increased agricultural trade”

Various types of capacity building contribute to these results. Institutional and trade capacity development are among the factors leading to increased competitiveness, which in turn leads to increased trade. The SO and IRs are shown in the IEHA monitoring and evaluation (M&E) framework in Figure 1.

FIGURE 1: IEHA M&E FRAMEWORK



⁶ Other “underlying determinants” of child malnutrition include national food availability, women’s education, women’s status relative to men’s, and access to safe water.

IEHA ALIGNS WITH STRATEGIC DEVELOPMENT PRINCIPLES

To effectively meet its commitment to agricultural transformation and poverty reduction, IEHA has aligned its efforts with other key initiatives of the U.S. Government (USG), African governments, and the development and world economic communities.

For example, IEHA's guiding principles are consistent with and support the **USG's new Foreign Assistance Framework**. In the program area of agriculture, the framework's enabling environment and sector productivity elements (results areas), directly parallel two of the three IEHA IRs. IEHA's output and results indicators directly contribute to these program elements in the framework and will provide an early harvest of data to demonstrate progress in promoting transformation.

The USAID Office of Food for Peace (FFP) supports IEHA in linking humanitarian and development assistance to achieve economic growth and poverty reduction. FFP uses P.L. 480 Title II resources to stabilize and enhance the food security of the vulnerable in ways that contribute to agricultural development and rural transformation. FFP programs in IEHA focus countries have demonstrated improvements in productivity and income, based on new skills and technology transferred through its relief-to-development activities. IEHA will capitalize on the lessons learned from these activities and promote the scaling up of those productivity-enhancing investments that have long-term developmental benefit.

More broadly, IEHA directly contributes to the advancement of trade policy for agriculture, a key item for the international development community and World Trade Organization as well as for the African Growth and Opportunities Act (AGOA), which offers trade incentives for African countries. IEHA does this through its strategic alignment with and support of CAADP (see box) that, as an integrated framework for action, can move the trade agenda much better than more fragmented efforts. IEHA and CAADP promote regional agricultural trade agreements, the use and harmonization of grades and standards, reductions in transactions costs, and other integrated, comprehensive actions that improve competitiveness. African governments have requested, and the Group of Eight (G-8) supports, this effort to enhance the contribution of trade to the process of agricultural growth and transformation.



Comprehensive Africa Agriculture Development Program: An African Vision of Sub-Saharan Transformation and Economic Growth

In 2003, under the auspices of the New Partnership for Africa's Development, African Heads of State and Government endorsed the Comprehensive Africa Agriculture Development Program (CAADP), a framework that promotes agricultural development as a critical means to reduce hunger, poverty, and food insecurity, and increase trade and wealth. CAADP is the most ambitious and comprehensive agricultural reform effort ever undertaken in Africa and it is vitally important to Africa for developing effective approaches and needed skills. The four CAADP pillars are:

1. Extending the area under sustainable land management and reliable water control systems (closely related to IEHA's IR 1: Enhanced Productivity of Smallholder-Based Agriculture);
2. Improving rural infrastructure and trade-related capacities for market accesses (analogous to IEHA's IR 3.2: Enhanced Agricultural Market Infrastructure, Institutions, and Trade Capacity);
3. Increasing food supply, reduce hunger, and improve responses to food emergency crises (closely related to IEHA's overall goal of reducing hunger and poverty); and
4. Improving agriculture research, technology dissemination and adoption (equivalent to IEHA's IR 1.1: Expanded Development, Dissemination, and Use of New Technology).

CAADP: focuses resources in the right places; harmonizes assistance by donors, amplifying its impact; provides a forum for agricultural policy dialogue, which will lead to the agricultural sector's obtaining public and private capital; and provides peer review for accountability. African governments and their donor partners—especially USAID—are now working on applying these approaches and skills to create results on the ground.

CAADP's core objective is to achieve sustained 6-percent annual growth in agriculture. In the 2003 Maputo Declaration, African Heads of State committed to increasing government expenditures in agriculture to at least 10 percent of their total national budgets by 2008, exclusive of donor funding. USAID, through IEHA, intends to both encourage and closely monitor the achievement of this objective.

African governments and their donor partners are currently: creating the foundation for CAADP implementation; launching regional economic community- and country-level operational plans; holding consultations at the ministerial level; and working with the African Union Commission to integrate CAADP with the AU's Sirte Declaration.* Under CAADP's Pillar 4, USAID supported its African partners to develop and adopt a Framework for African Agricultural Productivity; there is now a programmatic framework and dialogue process at the country, regional, and continent levels.

At the country level, CAADP does stocktaking and strategic planning through country CAADP Round Tables, and builds partnerships and alliances between key actors under the leadership of national governments. Resultant CAADP Country Compacts identify policy changes and integrated investment action plans to stimulate agricultural growth. The 2007 target is for 10 African countries to have completed the Round Table process by July 2007.

** The Second Extraordinary Summit of African Heads of State and Government, held in Sirte, Libya in February 2004, called on member states to commit themselves to the development of African agriculture; the establishment of centers of excellence for the development of African agriculture; the establishment of banks for genetic resources for agriculture and livestock; the provision of registration mechanisms for intellectual property rights; the enhancement of early warning systems; the establishment of information networks for agricultural production and food security and input and output marketing; and other initiatives supportive of African agriculture. (See www.africa-union.org)*

To accelerate implementation of the CAADP strategy, USAID will increase the alignment of IEHA with individual regional- and country-conceived processes and programs. USAID programmed \$195.3 million on 2006 and will program similar amounts through 2010. In 2006, IEHA supported the CAADP planning processes at the regional and country levels. At the same time, IEHA is directly supporting field programs that contribute to the CAADP objective. This report summarizes some of those 2006 actions and achievements.

Also on the international level, IEHA supports the March 2005 Paris Declaration on Aid Effectiveness, an agreement among donors and partner countries on several key operating principles:

- Harmonization, alignment, and managing for results;
- Strengthening partner countries' national development strategies;
- Helping to strengthen partner countries' capacities;
- Diagnostic reviews; and
- Harmonizing worldwide humanitarian and development assistance within growth and poverty reduction agendas.

THE IEHA PLATFORM IN FY 2006

In FY 2006, IEHA programs were active in six focus countries and three subregional missions, as shown in the accompanying map, and in Washington central portfolios. Special programs related to biotechnology were supported in South Africa and Nigeria. As part of aligning with CAADP, in 2006 IEHA began developing targeted plans to reverse the cycle of food insecurity in two famine-prone countries, Malawi and Niger.

As shown in Table 1, IEHA's total funding reached \$195 million in FY 2006. In that same year, \$75.5 million of FY 2006 Development Assistance funding was made available to support IEHA. All of these funds were obligated and support field implementation of programs in FY 2007.

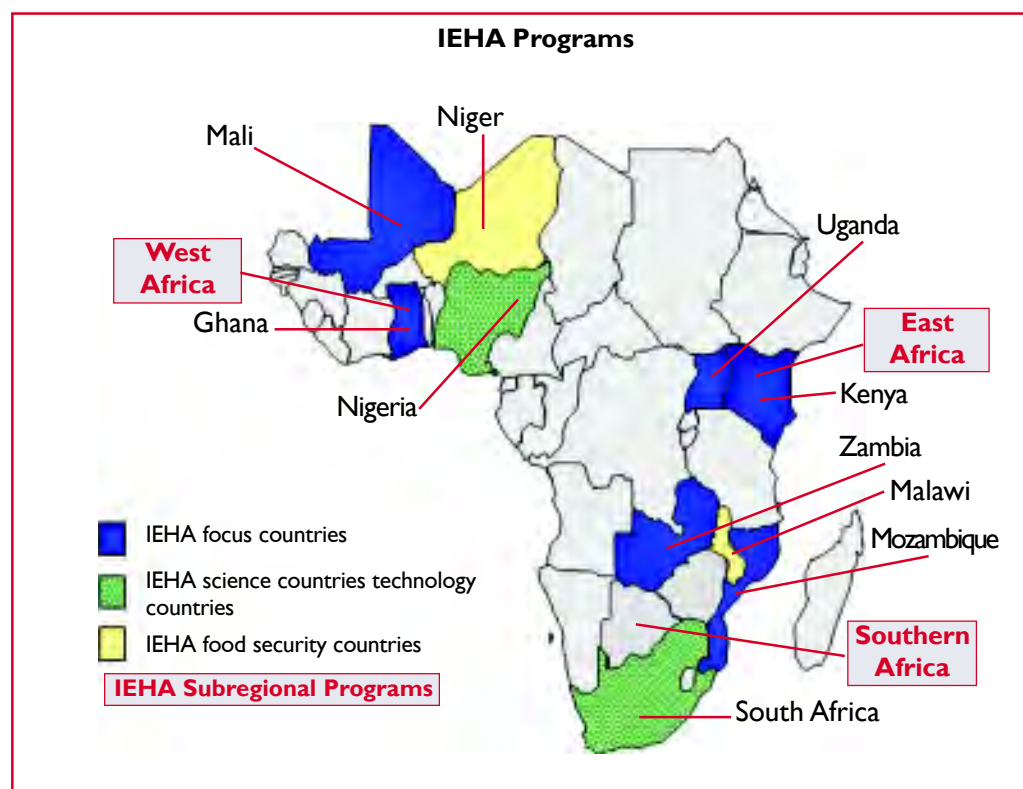


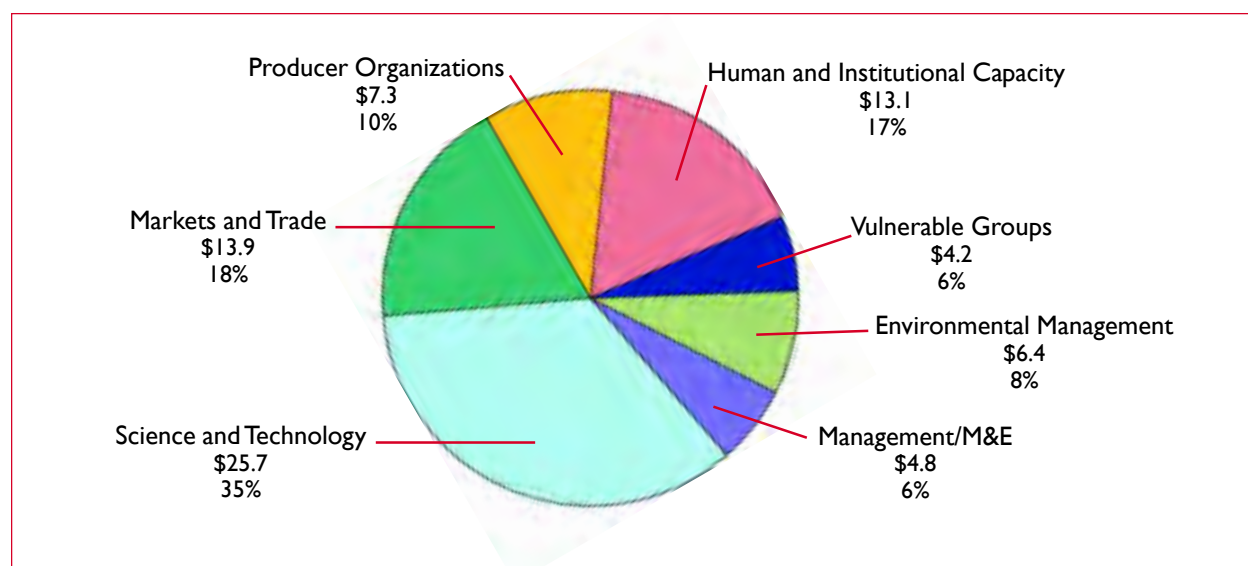
TABLE 1: IEHA FUNDING (MILLIONS OF US DOLLARS)

FY	Development Assistance	P.L. 480 Title II	Famine Fund	Total
2003	26.5	NA	NA	6.5
2004	67.5	NA	NA	67.5
2005	67.9	NA	5.0	72.9
2006	75.5	100.0	19.8	195.3

THE IEHA PORTFOLIO

The allocation of IEHA/Development Assistance resources to all thematic areas is shown in Figure 2. Science and technology and markets and trade account for about half of total investments.

FIGURE 2: IEHA EXPENDITURES BY THEMATIC AREA, FY 2006 (EXPENDITURES IN MILLIONS)



IEHA invests in several key areas and subsectors in order to enhance regional and national enabling environments and increase agricultural sector productivity. Key subsectors include maize, rice, cassava, cotton, coffee, and horticulture. In 2006, IEHA allocated 35 percent of its resources to scientific and technological applications, which are raising the productivity of farms and firms and increasing the stability and volume of the food supply. Agricultural technology also improves product quality, relieves pressure on natural resources, reduces post-harvest losses, helps producers respond to markets, helps entrepreneurs develop profitable enterprises, raises farm incomes, and lowers the price of food to consumers. More efficient agricultural trade and market systems, which are improving African competitiveness in export and domestic markets, connecting African farmers to consumers, and integrating African countries into global markets, garnered 18 percent of IEHA's funds. More effective market systems add value to products and processes, deliver high-quality, safe products, and reduce costs for consumers. Developing human capital and institutions, which

consumed 17 percent of IEHA's resources, is fundamental to sustaining agricultural growth. In the public sector, Africans must shape and lead policy and research, and in the private sector, they must organize to advocate for improved policies and lead producer and other organizations that connect their members with markets and services. Community- and producer-based organizations (10 percent of IEHA resources) contribute to agricultural growth by providing a wide variety of business, training, and leadership development services and giving a political voice to the economic interests of farmers. Such organizations also link farmers (especially smallholders) to businesses (input vendors, traders, and food processors).

Harmonizing Seed Policy

Working under Program SubElement Agricultural Market Standards and Regulations, IEHA is succeeding in its thrust on seed policy harmonization in southern Africa. Three seed agreements—a regional variety registration system for the Southern African Development Community region, a common set of seed certification standards for 18 seed crops, and a greatly reduced, science-based quarantine pest list for regional seed trade—were formally endorsed by the Permanent Secretaries on September 19, 2006. They will be presented to the countries' Ministers of Agriculture for fast-track approval in April 2007. This activity encapsulates how regional programs can work toward improvements in policy that directly affect productivity (through high-yielding seeds) and trade. See "Agricultural Market Standards and Regulation" in section 3 for more details.

EVALUATION OF IEHA SHOWS SIGNIFICANT PROGRESS

In 2006, a mid-term evaluation of IEHA was completed (LTL Strategies 2006). The evaluation documents IEHA's significant progress and projects that the initiative will show an excellent return on the USG's investment. It finds that IEHA is building partnerships at the national level, bringing together government and private investments. It recognizes that IEHA has focused its attention on the critical policies and priority areas of investment required to increase productivity and incomes.

The evaluation confirms that IEHA is an agricultural initiative giving major attention to marketing, agribusiness development, community organizations that support farmers, and production. It is improving farmers' ability to access information and link to markets, and it is making numerous farm enterprises more profitable. Farmer organizations are playing a critical role in service delivery, as well as having an influence on research and financial organizations so that agricultural products are better tailored to market demands.

Specifically the mid-term evaluation of IEHA found that:

“IEHA activities are succeeding in raising beneficiary productivity of targeted commodities, in many cases, substantially. ... [I]t was observed that programs had contributed substantially to employment creation. Beneficiaries are successfully linking to markets at the local, regional and international levels.” (Executive Summary, p. 2)

The evaluation also notes that one issue remains: whether IEHA is large enough to leverage or achieve the growth and transformation being sought.

OVERVIEW OF THIS REPORT

The remainder of this report provides the full scope and details of IEHA's progress, and a framework for agricultural transformation in which to understand that progress. Section 2 summarizes IEHA's progress by key indicator and by operating unit. Section 3 provides details of specific accomplishments by IR and operating unit. Section 4 discusses achievement of IEHA's SO, increased rural income. Section 5 explains agricultural transformation and demonstrates that IEHA is achieving it. Finally, Section 6 describes how IEHA is building regional platforms to support the CAADP and why this is so important.

2. IEHA'S PORTFOLIO ON TRACK

Each IEHA operating unit reports on a set of common indicators developed to track the performance of IEHA-related investments. The indicators include both output measures and impact measures (i.e., results). Operating units surpassing 100 percent of the targets are regarded as exceeding targets. Those meeting 90-100 percent of the targets are regarded as on track. Those meeting 70-90 percent of targets are viewed as making progress but needing improvement, and those meeting less than 70 percent of targets are viewed as failing.

Additional details about IEHA achievements are given in Section 3.

MEETING TARGETS FOR KEY OUTPUTS

The overall performance of individual IEHA operating units was at or above target levels in FY 2006, as shown in Table 2. The performance of all operating units submitting target and actual data on average exceeded the target level. All units achieved either all or most of their targets.

TABLE 2: ACHIEVEMENT OF OUTPUT* TARGETS, IEHA OPERATING UNITS, FY 2006

Operating Unit	Targets & Data Expected (No. of Indicators)	(Non-zero) Targets & Data Submitted (No. of Indicators)	Targets Met or Exceeded (No. of Indicators)	Average Percentage of FY 2006 Target Achieved
East Africa	8	8	7	137%
Southern Africa	8	10	9	152%
West Africa	8	8	8	188%
Ghana	11	11	8	130%
Kenya	11	8	7	158%
Mali	11	10	7	310%
Mozambique	11	11	10	111%
Uganda	11	10	7	130%
Zambia	11	8	8	148%
EGAT/AG**	8	0	0	
EGAT/ESP**	8	5	5	1240%

Source: Annual M&E reports by IEHA operating units.

Note: Average Percentage of FY 2006 Target Achieved is the simple average of the percentages achieved for all of the output indicators for which target and actual data were submitted.

*See Table 3 for specific outputs.

**EGAT/AG is the USAID Bureau for Economic Growth, Agriculture, and Trade/Office of Agriculture. EGAT/ESP is the USAID Bureau for Economic Growth, Agriculture, and Trade/Office of Environment and Science Policy.

In FY 2006, IEHA as a whole met seven of its 11 targets for key outputs, as shown in Table 3. Achievement of overall targets ranged from 91 percent to 214 percent.

IEHA reached more than 9.6 million beneficiaries in 2006, including more than 1.2 million vulnerable households. Attendance in training was nearly 600,000, and more than 800 new technologies were made available. Women's attendance in training exceeded 200,000, and more than 1,300 women's associations were assisted. IEHA helped more than 8,300 other organizations and associations to better serve their smallholder and private sector members. Nine hundred public-private partnerships were newly formed, and nearly 1,600 other partner organizations and active members of those organizations were assisted.

We conclude from the reporting that has been completed by all operating units and partners that in 2006 IEHA was successful in implementing field activities and coordinating initiative-wide actions that were expected to produce the targeted impacts on incomes, poverty, and hunger.

TABLE 3: ACHIEVEMENT OF OUTPUT TARGETS, ALL IEHA OPERATING UNITS, FY 2006

Output Indicator	FY 2006 Target	FY 2006 Actual	Percent of Target Achieved*
Number of rural individuals benefiting directly from interventions	10,592,096	9,679,750	91%
Number of rural households benefiting directly from interventions	2,013,438	1,854,859	92%
Number of vulnerable households benefiting directly from interventions	1,329,411	1,250,914	94%
Number of partner organizations and active institutional members of those partner organizations.	1,049	1,575	141%
Number of agriculture-related firms benefiting directly from interventions	1,770	2,524	140%
Attendance by male individuals in training	323,643	381,007	113%
Attendance by female individuals in training	211,640	209,210	91%
Number of producers' organizations, water users' associations, trade and business associations, and community-based organizations assisted	6,087	8,376	135%
Number of women's organizations/associations assisted	806	1,331	157%
Number of public-private partnerships formed	407	901	214%
Number of technologies made available for transfer	532	809	132%

Source: Annual M&E reports by IEHA operating units.

* Percent of Target Achieved is calculated using target and actual data from each IEHA operating unit. If an operating unit did not submit a target, then that unit's "actual" was excluded from the

MEETING TARGETS FOR KEY IMPACTS

In FY 2006, IEHA was on track in achieving its key impacts. Table 4 summarizes the accomplishments of bilateral operating units (USAID mission in-country) in terms of meeting or exceeding IR targets.

TABLE 4: ACHIEVEMENT OF IMPACT TARGETS, IEHA BILATERAL OPERATING UNITS, FY 2006

Intermediate Result	Number of Targets	Number of Targets Met or Exceeded
IR 1: Enhanced productivity of smallholder-based agriculture	18	8
IR 1.1: Expanded development, dissemination, and use of new technology	17	11
IR 2: Improved policy environment for smallholder-based agriculture	45	26
IR 3: Increased agricultural trade	6	4
IR 3.1: Enhanced competitiveness of smallholder-based agriculture	6	4
IR 3.2: Enhanced agricultural market infrastructure, institutions, & trade capacity	9	5

Source: Annual M&E reports by IEHA operating units.

Table 5 summarizes the performance of USAID missions in reporting on the common performance indicators. Four of the six focus missions (Ghana, Kenya, Uganda, Zambia) provided full reporting. One mission, Mozambique, reported on 50 percent or less of the indicators. These results suggest that it is feasible to establish and implement common IEHA reporting indicators, but also that improvement is needed in overall reporting.

TABLE 5: ACHIEVEMENT OF IEHA INTERMEDIATE RESULTS, BILATERAL OPERATING UNITS, FY 2006

IR, Indicator(s), and Target Categories	Total	Ghana	Kenya	Mali	Mozambique	Uganda	Zambia
IR 1: Enhanced Productivity of Smallholder-Based Agriculture							
<i>Indicator: Gross margin per hectare or per animal</i>							
Total number of indicators	1	1	1	1	1	1	1
Number of commodities reported	18	3	5 ^a	0	1	9	0
Number of commodities for which target met/exceeded	8	1	3 ^a	0	^b	4	0
IR 1.1: Expanded Development, Dissemination, and Use of New Technology							
<i>Indicators: Adoption of targeted technologies (area and numbers of farmers)</i>							
Total number of indicators	2	2	2	2	2	2	2
Number of indicators reported	17	2	3	3	1	8	^c
Number of indicators for which target met/exceeded	11	1 ^b	3	3	0	5	^c
IR 2 Improved Policy Environment for Smallholder-Based Agriculture							
<i>Indicator: Policy reform (milestones)</i>							
Total number of indicators	1	1	1	1	1	1	1
Number of policies reported	45	27	0	7	0	8	3
Number of policies for which target met/exceeded	26	17	0	4	0	2	3
IR 3 Increased Agricultural Trade							
<i>Indicators: Agricultural trade (targeted commodities, international and regional)</i>							
Total number of indicators	2	2	2	2	2	2	2
Number of indicators reported	6	1	1	1	0	2	1
Number of indicators for which target met/exceeded	4	1	1	0	0	2	0
IR 3.1 Enhanced Competitiveness of Smallholder-Based Agriculture							
<i>Indicator: Domestic agricultural trade by smallholders (targeted commodities)</i>							
Total number of indicators	1	1	1	1	1	1	1
Number of indicators reported	6	1	1	1	1	1	1
Number of indicators for which target met/exceeded	4	1	1	0	^b	1	1
IR 3.2 Enhanced Agricultural Market Infrastructure, Institutions, and Trade Capacity							
<i>Indicators: Trade-supporting transactions and capabilities</i>							
Total number of indicators	4	4	4	4	4	4	4
Number of indicators reported	9	3	1	3	0	0	2
Number of indicators for which target met/exceeded	5	1	1	2	0	0	1

Source: Annual M&E reports by IEHA operating units.

a 2006 targets were submitted for only three of the five commodities for which accomplishment data were submitted.

b Target(s) not reported.

c Unknown: data submitted with no disaggregation of commodities.

With regard to results achieved and reported, in 2006, IEHA helped more than 520,000 farmers bring more than 850,000 hectares under new technology, and more than 100 processors employed new technology to add value to more about 170,000 tons of agricultural products. (See Table 6.) The value of international

trade in targeted agricultural products was \$812 million and, in intra-regional trade, about \$435 million; assisted smallholders sold almost \$150 million in domestic markets. Beneficiaries accessed nearly \$5.3 million in credit. Overall, IEHA achieved 140 percent of its targets. Increases in productivity came in commodities like maize, milk, and cashews through improvements such as improved seeds and adoption of best practices such as planting in lines to optimize plant density, crop rotation, and composting. Improvements in the policy environment included seed policy harmonization, establishment of grades and standards, and biotechnology policy. The most important agricultural commodities traded internationally were vegetables, cashews, coffee, and maize.

These findings clearly indicate that the initiative's programs and activities are successfully stimulating enhanced performance from assisted service providers, farmers, and entrepreneurs.

TABLE 6: ACHIEVEMENT OF IEHA INTERMEDIATE RESULTS TARGET, BY INDICATOR, FY 2006

IR & Indicator	FY 2006 Target	FY 2006 Actual	Percentage of FY 2006 Target Achieved
Productivity - Gross margin per hectare or per animal	N/A	N/A	123%
Dissemination of New Technology			231%
Area under new technology	172,110	851,217	495%
Number of farmers adopting new technology	275,844	522,677	189%
Volume of produce processed with new technology	176,396	169,307	96%
Number of processors adopting new technology	71	101	142%
Capacity for Technology Development & Dissemination - PIVA* score (100-pt scale)	30	20	68%
Policy Environment - number of milestone steps	102	78	76%
Capacity for Policy Development - PIVA score (100-point scale)	86	80	92%
Trade**			135%
Value of international trade (US dollars)	550,543,293	811,854,142	145%
Value of intra-regional trade (US dollars)	390,630,776	435,021,781	119%
Competitiveness - value of domestic trade**	64,838,150	189,397,130	282%
Market Infrastructure & Trade Capacity			114%
Value of credit to beneficiaries (US dollars)	3,653,454	5,278,213	144%
Number of enterprises accessing business development services	64,341	78,766	122%
Number of firms achieving international standards	30	26	87%
Trade capacity - PIVA score (100-point scale)	43	39	91%
IEHA Average			140%

Source: Annual M&E reports by IEHA operating units.

Notes:

Percentage of Target Achieved is calculated only when both FY 2006 targets and actuals are available.

Productivity - Gross margin: Percentage of Target Achieved is calculated separately for crops and animals using area and number of animals as weights; overall Percentage of Target Achieved is the simple average of percentages achieved for crops and animals.

Dissemination of New Technology and Market Infrastructure & Trade Capacity: overall Percentage of Target Achieved is calculated as the simple average of percentages of target achieved for the four indicators.

IEHA Average: Percentage of Target Achieved is the simple average of the percents achieved of all IRs.

* PIVA is Partner Institution Viability Assessment

** Target and actual figures aggregate data submitted by regional and bilateral missions; there may be a small amount of double counting. This does not affect the percent of target achieved.

ACHIEVEMENT OF MILLENNIUM DEVELOPMENT GOALS

The findings summarized above indicate that IEHA's investments are on track to achieve their targets for key outputs and results. This section summarizes how the IEHA countries are doing overall in their quest to achieve the MDG hunger and poverty targets.

Table 7 summarizes data on the progress that IEHA countries and sub-Saharan Africa as a whole have made toward meeting the MDG of halving poverty by 2015.⁷ Ghana, Mali, Mozambique, and Uganda seem to be on their way to achieving the MDG; doing so will require that they maintain reasonable growth rates in both the agricultural and non-agricultural sectors. But for many African countries, more needs to be done if they are to achieve the MDG. Especially troubling among IEHA countries are Kenya and Zambia, which have not been growing their agricultural sectors fast enough to reach the MDG. Accelerating agricultural growth and maintaining an annual agriculture growth rate of more than 7 percent is a significant challenge. Mozambique, for example, has been able to achieve an annual growth rates of as much as 8 percent over several years, but it started at a much lower base of natural resource and input utilization following years of civil war.

Mali's recent growth rate of 5.1 percent (2000-04) is encouraging, and a marked increase over its longer-term growth rates of 2.8 percent per year. If Mali can maintain the steadily higher of recent years, it is reasonable to conclude that the country has a good chance to reach the MDG.

TABLE 7: REQUIRED AGRICULTURAL GROWTH RATES TO MEET MDG POVERTY GOAL (PERCENT)

Country/ Region	Average Annual Agricultural Growth Rates* 2000-2004	Current National Poverty Rates (most recent from various years)	Targeted MDG Poverty Rates by 2015	Poverty Rates in 2015 under Business as Usual	Required Annual Agricultural Growth Rate to Meet MDG 2004-2015
Ghana	5.0	34.0	26.0	24.7	2.8
Kenya	1.9	55.4	24.4	57.4	9.7
Mali	5.1	59.6	34.0	48.8	5.1
Mozambique	8.9	51.1	37.2	28.0	2.8
Uganda	3.9	36.2	28.0	25.0	3.1
Zambia	1.3	66.8	34.9	64.5	7.1
SSA	3.6	42.4	22.3	36.9	6.7

Source: *Calculated from World Bank (2006) and Fan et al. (forthcoming 2007).

PROGRESS TOWARD COUNTRIES' AGRICULTURAL EXPENDITURE TARGETS

Each member country of the New Partnership for Africa's Development (NEPAD) committed (at Maputo, Mozambique in 2003) to allocate 10 percent of its annual total government budget to the agricultural sector

⁷ These results are based on an analysis by the International Food Policy Research Institute (IFPRI) of the relationships among agricultural growth, non-agricultural growth, and poverty. In this analysis, the level of agricultural growth needed to meet the MDG is calculated using growth elasticity of poverty estimates by Christiaensen et al. (2006) that include both agricultural (1.83) and non-agricultural (0.8) contributions. Also included is the multiplier effect of agriculture on non-agricultural growth; Delgado et al. (1998) finds that the multiplier is about 1.5 in Africa, meaning that for each dollar invested in agriculture, at least 50 cents of non-agricultural income is also generated.

by 2008. This is a challenging commitment and progress toward it needs to be tracked carefully. Table 8 shows IFPRI estimates of government spending on agriculture as a percentage of total government spending in the IEHA countries and sub-Saharan Africa, based on the past three years of available (Fan et al., forthcoming 2007). Through the CAADP Round Table process, the status of budgets and financing for agriculture is being monitored. Country-specific baseline studies have been launched, the first of which is in Rwanda. Study outcomes will be monitored through the CAADP review process, including the CAADP Partners Platform.

TABLE 8: EXPENDITURES ON AGRICULTURE AS A SHARE OF TOTAL GOVERNMENT EXPENDITURES

Country/Region	2002-04*	Last 3 Years' Actual Data	
		Share	Years
Ghana	0.9%	0.9%	2002-04
Kenya	4.6%	4.8%	2000-02
Mali	10.2%	7.7%	2000-02
Mozambique	4.3%	4.3%	2002-04
Uganda	4.5%	4.1%	2001-03
Zambia	2.5%	4.4%	1997-99
Sub-Saharan Africa	4.3%		

Sources: International Monetary Fund, various publications; World Bank, World Development Indicators; and IFPRI projections.

*Data for Ghana and Mozambique are actual; data for other countries are a mixture of actual data and projections; for last year of actual data see last column of table

3. IEHA'S CONTRIBUTION TO GETTING AGRICULTURE MOVING IN 2006

In FY 2006, IEHA made solid progress across all of its IRs-increased smallholder productivity, improved policies, and enhanced trade. Initiative programs helped agricultural smallholders, agribusinesses, and other private sector entities to increase their wealth by giving them the skills and market access that they need. IEHA's productivity-, market-, and policy-related programs also increased the availability of calories and protein among the chronically food insecure. Overall more than 9.6 million individuals in more than 1.8 million rural households benefited directly from IEHA interventions in FY 2006; more than 1.2 million vulnerable households were helped. The following sections present hard data to show these results and selected narrative examples from the focus countries, regional missions, and central bureau-supported programs.⁸

INCREASED SMALLHOLDER PRODUCTIVITY

IEHA programs are reducing poverty and hunger by enhancing productivity and income at all parts of the agricultural value chain. The programs do so by providing skills and information directly to farmers, processors, and traders, as well as associations of producers and exporters. They also strengthen public and private research and extension systems to deliver new technology.

IEHA's key indicator of progress in smallholder productivity is gross margin, which encompasses both physical yield and the gross profit per unit of land or animal. The profitability of a crop or livestock activity, as reflected in gross margin, is a critical gauge of IEHA's benefits to the smallholder. Increases in gross margin translate into increased farm and household income.

When producers (and others like processors) spend the additional income measured here in gross margin, they generate additional income and create jobs in surrounding areas and the rest of the economy. Moreover, gross margin is a measure at the farm enterprise level equivalent to value-added at the sector level; increases in gross margin thus herald the accelerated agricultural growth that is required to reduce hunger and poverty.

Maize, milk, and cashews are three commodities supported by IEHA programs in multiple USAID missions. Tables 9, 10, and 11 show results in physical yield and in gross margin (profitability) for these commodities from USAID-supported projects. Some highlights of these results are the following:

- In maize, all countries saw a significant increase in gross margin, and all except Uganda had significant increases in yield; the overall increase in gross margin was 6 percent;



⁸ Annex 2 contains the 2006 annual reports of the IEHA Operating Units. Annex 4 describes how IEHA performance data are collected.

- In milk, there were significant increases in gross margin and yield overall, led by Kenya, with virtually no change in Uganda; the overall increase in gross margin was 17 percent. Female-headed households engaged in milk production remained more productive than male-headed households in Uganda and jumped ahead in Kenya; and
- In cashews, all countries saw a significant increase in both gross margin and yield; the overall increase in gross margin was 52 percent. Female-headed households were equally as productive as male-headed households in cashews in Kenya, but lagged in Ghana.

TABLE 9: IMPROVEMENTS IN MAIZE PRODUCTIVITY, FY 2006

Country	Indicator	Area (hectares)	Production (tons)	Quantity sold (tons)	Value of sales (\$US millions)	Purchased input cost (\$US)	Gross margin per hectare (\$US/ha)	Yield (tons/ha)
Kenya	Total for FY 2005	326,133	2,201,617	1,541,132	29.3	11,636	\$128	6.75
	Total for FY 2006	699,748	5,038,689	3,527,083	67.1	26,787	\$137	7.20
	Change (%)	115%	129%	129%	129%	130%	7%	7%
Mozambique	Total for FY 2005	1,722	3,343	1,003	0.100	1,937	\$193	1.94
	Total for FY 2006	575	1,700	595	0.071	906	\$353	2.96
	Change (%)	-67%	-49%	-41%	-29%	-53%	83%	52%
Uganda	Total for FY 2005	2,390	8,960	6,720	0.644	147,380	\$297	3.75
	Total for FY 2006	3,006	11,273	9,018	0.877	180,360	\$305	3.75
	Change (%)	26%	26%	34%	36%	22%	3%	0%
IEHA Total	Total for FY 2005	332,032	2,214,263	1,551,538	30.3	169,543	\$130	6.67
	Total for FY 2006	703,329	5,051,662	3,536,696	68.0	208,872	\$138	7.18
	Change (%)	112%	128%	128%	124%	23%	6%	8%

Source: Annual M&E reports by IEHA operating units.

In Mozambique, the productivity-enhancing maize technology is improved seeds (both open-pollinated and some hybrid varieties), along with best practices such as planting in lines to optimize plant density, crop rotation, and composting. Seeds were selected from the farmers' fields with extension support. Under Ghana's Title II program, yields of maize have increased from 0.32 tons/acre in 2002 to 1 ton/acre in 2006, yields of soybeans from 0.2 ton/acre to 0.68 ton/acre, and yields of peanuts from 0.12 tons/acre to 0.72 ton/acre (twice the national average).

In East Africa, productivity growth in dairy systems development has been identified by the Common Market for Eastern and Southern Africa (COMESA), the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), and national governments as offering some of the highest impacts available on transformation and poverty reduction. In Kenya and Uganda, IEHA supports technology dissemination programs at the farm level. USAID/Kenya and USAID/East Africa have collaborated to link smallholder dairy farmers to market opportunities in the region.

In Kenya, improvements in dairy productivity (shown in Table 10) represent the average performance across all farmers. The program has supported close to 100,000 farmers over the years, working with an average of 25,000 farmers in a year.

TABLE 10: IMPROVEMENTS IN MILK PRODUCTIVITY, FY 2006

Country/ Household	Indicator	Number of milking animals	Production (Thousands of Liters)	Quantity sold (Thousands of Liters)	Value of sales (\$US millions)	Purchased input cost (\$US millions)	Gross margin per animal (\$US/an.)	Yield per animal (L/an.)
Kenya - male households	Total for FY 2005	42,000	106,596	79,940	18.3	15.4	\$215	2.54
	Total for FY 2006	52,500	137,498	105,875	24.2	19.1	\$235	2.62
	% change	25%	29%	32%	32%	24%	10%	3%
Kenya - female households	Total for FY 2005	18,000	38,394	26,874	6	6	\$174	2.13
	Total for FY 2006	22,500	66,218	46,350	11	7	\$355	2.94
	% change	25%	72%	72%	72%	27%	104%	38%
Uganda - male households	Total for FY 2005	59,983	100,771	60,463	8.4	3	\$191	1.68
	Total for FY 2006	67,200	112,159	67,295	9.3	3	\$190	1.67
	% change	12%	11%	11%	11%	11%	-1%	-1%
Uganda - female households	Total for FY 2005	2,512	5,275	3,165	0.4	0	\$239	2.10
	Total for FY 2006	2,712	5,648	3,389	0.5	0	\$237	2.08
	% change	8%	7%	7%	7%	7%	-1%	-1%
IEHA Total	Total for FY 2005	122,495	251,037	170,442	33.3	24	\$207	2.05
	Total for FY 2006	144,912	321,522	222,909	44.6	29	\$243	2.22
	% change	18%	28%	28%	34%	23%	17%	8%

Source: Annual M&E reports by IEHA operating units.

IEHA works in several other key commodities that are important to its smallholder beneficiaries. Additional examples of its accomplishments in FY 2006 include the following.

- In Uganda, 1,748 demonstration sites were established and 31,700 farmers (17,300 females) were exposed to new techniques in upland Nerica rice production. USAID-assisted rice processing companies purchased a total of US\$3.9 million of paddy rice from assisted farmers. In Mali, the rice credit storage program, which enables producers to store their rice and market the produce when prices increase, was greatly expanded. USAID provided training to village associations in assessing the quality of rice for storage, storage management and control, record keeping, and calculations of loan repayments and rice marketing periods. The program helped 53 village associations (of which 15 were women-only groups) representing 3,144 beneficiaries store a total of 1,757 tons of rice. USAID also rehabilitated about 2,730 hectares of land under irrigation. Program interventions, including improved crop varieties (especially Nerica rice varieties), improved soil and water management practices, and improved crop management techniques, resulted in increased yields of rice from 0.5 tons to 5.4 tons/ hectare in many target zones.

- In West Africa, on-farm demonstrations facilitated by the sorghum and millet network in sorghum hybrids showed 17-58 percent higher output over the local varieties, equivalent to 0.3 to 0.9 tons increased yield per hectare.
- Under the Kenya Horticulture Development program, productivity increased by 35 percent for tomatoes and 11 percent for potatoes. Tomato productivity increased from a mean of 1,526 kg/acre to 2,544 kg/acre, while potatoes increased from 1,560 kg/acre to 2,080 kg/acre.
- In Zambia, technical assistance to two seed producers resulted in contracts worth more than \$500,000. In West Africa, farmers adopting the improved agronomic package comprising mainly fertilizer and cultural practices consistently obtain 2.0-2.5 tons/hectare in sorghum as compared to less than 1 ton/hectare under traditional practices.
- In Uganda, as a result of efforts under the Fisheries Investment for Sustainable Harvest program, fish feed production rose from 200 kg in 2005 to more than 50,000 kg in 2006 and is expected to rise at an increasing rate in the coming years. USAID continued collaboration with A.K. Oils and Fats (U) Ltd, which sold about 86,000 kg of hybrid sunflower seed to assisted outgrowers and procured 15,135 tons of sunflowers, resulting in a net income of \$1.14 million to the registered farmers.

TABLE 11: IMPROVEMENTS IN CASHEW PRODUCTIVITY, IEHA COUNTRIES, FY 2006

Country/ Household	Indicator	Area (Hectares)	Production (Tons)	Quantity sold (tons)	Value of sales (\$US millions)	Purchased input cost (\$US millions)	Gross margin per hectare (\$US/ha)	Yield per hectare (Tons/ha)
Kenya - Male Households	Total for FY 2005	19,756	4,939	4,445	3.0	1.0	\$118	0.25
	Target for FY 2006	15,400	4,004	3,604	2.4	0.9	\$118	0.26
	Total for FY 2006	21,732	9,779	8,801	5.9	2.6	\$178	0.45
	% change	10%	98%	98%	97%	97%	51%	80%
	% of Target Achieved	141%	244%	244%	244%	310%	151%	173%
Kenya - Female Households	Total for FY 2005	8,467	2,117	1,905	1.3	0.4	\$118	0.25
	Target for FY 2006	6,600	1,716	1,544	1.0	0.4	\$118	0.26
	Total for FY 2006	9,214	4,191	3,772	2.5	1.1	\$180	0.45
	% change	9%	98%	98%	97%	168%	53%	82%
	% of Target Achieved	140%	244%	244%	245%	310%	153%	175%
Ghana - Male Households	Total for FY 2005	8	3	3	1,726.1	449.5	\$166	0.40
	Target for FY 2006	9	3	3	1,777.9	462.9	\$166	0.40
	Total for FY 2006	8	4	4	1,675.6	383.3	\$166	0.48
	% change	0%	19%	20%	-3%	-15%	0%	19%
	% of Target Achieved	97%	115%	116%	94%	83%	100%	119%
Ghana - Female Households	Total for FY 2005	2	0	0	213.3	97.8	\$93	0.23
	Target for FY 2006	2	0	0	219.7	100.7	\$93	0.23
	Total for FY 2006	2	0	0	192.1	73.6	\$78	0.28
	% change	0%	22%	37%	-10%	-25%	-17%	22%
	% of Target Achieved	97%	118%	133%	87%	73%	83%	122%
IEHA Total	Total for FY 2005	28,233	7,060	6,353	4.3	1.4	\$118	0.25
	Target for FY 2006	22,010	5,724	5,152	3.4	1.2	\$118	0.26
	Total for FY 2006	30,956	13,974	12,577	8.4	3.8	\$179	0.45
	% change	10%	98%	98%	97%	168%	52%	81%
	% of Target Achieved	141%	244%	244%	244%	310%	152%	174%

Source: Annual M&E reports by IEHA operating units.

IEHA-assisted smallholders are reaping the benefits of increased productivity because IEHA is also linking them to markets. The specifics of their adoption of new IEHA technology are highlighted in the next section. The details of their sales in domestic markets are given below (see "Linking Farms and Firms to Markets").

ADOPTION OF IMPROVED AGRICULTURAL PRACTICES

IEHA's target smallholders are reaping significant benefits from new technologies. Their adoption of new seeds and practices are detailed in Tables 12 and 13. More than 520,000 farmers adopted new IEHA technology in FY 2006, a 49-percent increase from FY 2005. The area covered in FY 2006 with new crop technology was more than 850,000 hectares. IEHA-supported research networks and technical assistance programs made more than 800 new technologies available⁹ for use by smallholders and others in various key value chains in 2006. In Kenya and Mali, nearly 170,000 tons of various commodities were processed using new technology provided by IEHA. In the rice subsector, the processors are village associations using improved storage techniques; in the mango subsector, mango exporters are using improved post-harvest handling, packaging, and marketing; and in the potato subsector, improved post-harvest handling, packaging, storage, and marketing have been adopted by potato trader cooperatives.

TABLE 12: ADOPTION OF NEW TECHNOLOGY, ALL COMMODITIES

Indicator	Unit	FY 2005 Actual	FY 2006 Target	FY 2006 Actual	Achieved vs. Target*
Area under new technology	Hectares	462,091	172,110	851,217	495%
Number of farmers adopting new techniques	Number	350,905	275,844	522,677	189%
Volume of produce processed by new techniques	Tons	3,989	176,396	169,307	96%
Number of processors adopting new techniques	Number	45	71	101	142%

Source: Annual M&E reports by IEHA operating units.

* Achieved vs. Target is calculated using target and actual data from each operating unit. If a unit did not submit a target, then that unit's "actual" was excluded from the calculation.

The most important commodities for which new IEHA technology was adopted in FY 2006 are maize, cotton, and milk; producers also adopted new rice and sunflower technologies over significant areas.

⁹ A new technology must be new to the user community, not necessarily newly developed by research.

TABLE 13: ADOPTION OF NEW TECHNOLOGY, SELECTED COMMODITIES

Commodity	Area under New Technology (ha)		Number of Farmers Adopting New Techniques	
	Total for FY 2005	Total for FY 2006	Total for FY 2005	Total for FY 2006
Maize	312,103	642,779	139,382	247,623
Cotton	12,160	27,968	63,850	87,398
Milk			34,003	59,647
Rice	6,017	11,412	17,790	19,020
Sunflower	4,493	7,510	9,000	29,052
Banana	4,850	7,464	5,600	6,344
Cassava	104	1,482	650	1,245
Vanilla	192	646	5,500	6,478
Pineapple	0	600	0	609
Total, these commodities	339,919	699,861	275,775	457,416

Source: Annual M&E reports by IEHA operating units.

USAID/Ghana reported the area under nursery for the new MD2 pineapple; the magnitude of adoption will increase significantly when farmers transplant the MD2 suckers into their fields. Several smallholder vegetable farmers and nucleus farms have adopted hybrid okra seed and are producing it for the European Union (EU) market. Another new technology is pruning techniques for mango farmers. In Kenya, new vegetable technologies include improved planting materials, raised and contoured beds, fertilizer, drip irrigation, and crop rotation. In Mozambique, USAID introduced a drying rack for peanuts that was adopted by 3,923 farmers. Tests showed the peanuts were aflatoxin-free, and exports were made to the EU for the first time. Installed cashew processing capacity reached approximately 42,000 tons per year, of which 80 percent belongs to USAID-assisted processors. The assisted cashew processing industry has now grown to 11 factories, employing approximately 9,000 people and generating \$8 million in revenue.

TABLE 14: ADOPTION OF NEW MAIZE TECHNOLOGY, FY 2006

Indicator	Unit	FY 2005 Actual	FY 2006 Target	FY 2006 Actual	Achieved vs. Target
Kenya					
Area under new technology	Hectares	303,303	56,679	629,773	1111%
Number of farmers who have adopted	Number	108,382	22,829	224,010	981%
Mozambique					
Area under new technology	Hectares				
Number of farmers who have adopted	Number	18,760	22,000	19,855	90%
Uganda					
Area under new technology	Hectares	8,800	15,000	13,006	87%
Number of farmers who have adopted	Number	12,240	15,000	3,758	25%
Total					
Area under new technology	Hectares	312,103	71,679	642,779	897%
Number of farmers who have adopted	Number	139,382	59,829	247,623	414%

Source: Annual M&E reports by IEHA operating units.

In 2006, more than 640,000 hectares were put under new IEHA maize technology, which was adopted by nearly 250,000 farmers (see Table 14). USAID/Kenya promoted the use of improved/certified maize seed, use of fertilizer, organic farming, soil liming, conservation, minimum tillage, and composting. USAID/Mozambique supported various production practices (planting in lines, improved seeds, spacing). The adoption rate of improved storage practices was 10 percent; adoption of improved traditional granaries was 13 percent; and 41 percent of farmers apply smoking to protect their crops from insects.

IMPROVED POLICIES

Smallholders will not be able to increase their productivity or enter new markets unless the policy environment affecting them is free of distortions and promotes competition. IEHA's policy reforms are improving enabling environments for smallholders and agriculture-based enterprises by removing key constraints and creating real opportunities. IEHA policy improvements like new commodity grades and standards are making trade more efficient and reliable. Reductions in tariffs and taxes on agricultural inputs are making investment more attractive to producers and others in the value chain, allowing them to take advantage of these opportunities, increase their incomes, and move out of poverty.

IEHA also supports the enhancement of policies with respect to key public investments like agricultural research, directing scarce resources to those areas where the results will be of most use to poor farmers. (Details on these activities are provided in section 6.)

The IEHA M&E system uses a 6-point scale for measuring policy progress, categorizing the status of each policy reform process by a milestone from New through Analysis, Dialogue, Proposal, Approval, and, finally, Implementation. On this scale, in 2006 the IEHA policy program advanced 36 policies a total of 72 steps (two steps per policy), and on 20 out of the 36 policies (56 percent), progress met or exceeded the 2006 target level.

Table 15 shows all agriculture-related policies under design or improvement that are supported by IEHA field missions, and the accomplishment in 2006 of milestones in those processes. The policies are presented in the categories of the new Foreign Assistance Framework.

Agricultural Market Standards and Regulations

Consistent with the USG's new Foreign Assistance Framework, IEHA's reforms improve laws, institutions, and policies that impact market transactions of agricultural goods, inputs, practices, and services. This includes international policies such as agriculture-related agreements of the World Trade Organization; domestic science-based regulation to ensure food, feed, and environmental safety; and market-based or industry-led quality grades, standards, and certification. These improvements in policies are critical to smallholders and others in agricultural value chains because they create opportunities for profitable agriculture-along with upstream and downstream economic activities-by making markets more efficient and enhancing smallholders' access to those markets.



Seed policy harmonization. In Southern Africa, the Seed Security Network of the Southern African Development Community (SADC) worked to ensure that all regional seed policy harmonization agreements emanating from previous and current regional workshops were finalized and approved by SADC officials. The program also established regional agreements on the detailed procedures for implementing these harmonization policies in each country. The national seed board country representatives prepared regional draft of legislation for the protection of new varieties based on guidelines from the International Union for the Protection of New Varieties of Plants and the Bangui Agreement of the African Intellectual Property Organization. The draft regional agreement on plant variety protection was presented to the Permanent Secretaries in September 2006. Three seed harmonization agreements were finalized and presented for approval by the Permanent Secretaries of the Ministries of Agriculture and the Ministries of Trade for each SADC country; they encompass a regional variety registration system for the SADC region, a common set of seed certification standards for 18 seed crops, and a greatly reduced quarantine pest list based on science for seed trade within the region. These agreements were formally endorsed by the Permanent Secretaries in a SADC-sponsored regional consultative meeting on September 19, 2006. The documents will now be presented to the Ministers of Agriculture for fast-track approval through a regional Memorandum of Understanding (MOU) in April 2007.

Regional framework for seed regulation. Through USAID/West Africa's support for the Permanent Interstate Committee for Drought Control in the Sahel (Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel, or CILSS), centered on CILSS' role in addressing food insecurity, a regional framework for seed regulation was developed in the nine CILSS countries with the collaboration of national stakeholders and other regional and international organizations. This framework has been approved by the CILSS Council of Agriculture Ministers and will be submitted to member countries for adoption and implementation. CILSS also signed a MOU with the ECOWAS and the West African Economic and Monetary Union to extend this experience to all West Africa's countries.

Biotechnology. To implement the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa, COMESA drew upon the expertise at the Eastern and Central Africa Program for



Agricultural Policy (ECAPAPA) and the Eastern and Central Africa Biotechnology and Biosafety Program (ECABIO)¹⁰ with assistance from the African Centre for Technology Studies and USAID's central Program on Biosafety Systems to develop a common regional framework for laws and regulations. At a workshop in May, senior delegates from the member states discussed how different biosafety scenarios would affect food security (including access to food aid), exports (particularly to Europe), and intra-regional trade. These discussions provided a clear basis for decisions by member states that will balance potential benefits against potential costs. The harmonized approach will prevent new barriers to trade that would be created by separate country policies. In addition, USAID/Mali contributed to the development of a biotechnology/biosafety directive for research that is currently awaiting governmental approval.

¹⁰ The policy (ECAPAPA) and biotechnology (ECABIO) programs of ASARECA.

Other market-related policy improvements address grades and standards for other specific commodities, biosafety and pesticide regulations, and duties on packaging materials. These are key issues on IEHA's agenda for improving market access for millions of African smallholders. USAID/Mali contributed to the formulation of grades and standards for potato and rice and national quality standards for mango exports. In East Africa, a MOU was signed by dairy subsector regulators in Rwanda, Kenya, Tanzania, and Uganda to apply common standards for hygienic milk handling equipment and for the certification of traders, facilitating cross-border recognition of certified traders. In West Africa, USAID is assisting in the development of common biosafety regulations and common regulations for conventional and transgenic seeds in CILSS countries. The development of a legal and regulatory framework for pesticide importation, manufacturing, and management is being supported in Ghana; seven regulations were drafted for the implementation of the Pesticide Control and Management Act. Ugandan import duty and value-added tax (VAT) were eliminated on gunny sacks used for coffee and other exports. USAID/Zambia provided assistance to the Ministry of Agriculture and Cooperatives to begin implementation of the Agricultural Marketing Development Plan by facilitating the drafting of new legislation, and the Agricultural Input Markets Plan was finalized. Both plans embody private sector development in food and inputs markets and aim to translate policy design into policy implementation.



Food Policies

IEHA's enhancements of the enabling environment support institutions, policies, and incentives aimed at ensuring that adequate, safe, and nutritious food is available; markets function efficiently; and low-income groups and those vulnerable to food insecurity (e.g., female farmers with small land holdings, female-headed households, children, and HIV-affected) are able to access and appropriately utilize that food. These enhancements are essential if large vulnerable populations are to reach food security and transition to productive lives in agriculture.

USAID/Ghana continued its support for the development and implementation of a system to monitor and evaluate progress toward achieving Ghana's updated Growth and Poverty Reduction Strategy (GPRS II), which emphasizes accelerated economic growth for poverty reduction.

Public Investment Policies

IEHA programs improve institutions and policies that encourage increased and more effective public and private investments in agricultural institutions and infrastructure to provide the basis for expanded productivity in the agricultural sector. This includes support for 1) scientific and technological advances through research and development, 2) governmental actions that provide a positive climate for innovation and investment, and 3) efforts to comply with international treaties and encourage international cooperation and public-private partnerships. These institutional and policy improvements are crucially important to smallholders and businesses dependent on agriculture because they accelerate the creation of appropriate new technology and bring more resources to bear to solve key problems.

In Mali, two new activities were initiated with the government of Mali to strengthen the seed system and introduction of improved wheat genotypes. USAID/Ghana provided assistance for the revision of the Food and Agriculture Sector Development Program (FASDEP). In Kenya, a successful conference was held on agricultural services and inputs and their impacts on agricultural productivity in Kenya. Findings of the

conference were used to define the agenda of the Agricultural Sector Coordination Unit's technical working groups on inputs and financial services and extension and research. In Zambia, the USAID mission contributed to economic analysis of agricultural input use and conservation farming technologies and stimulated technical and policy dialogue on cassava production and marketing, farm-level adoption of conservation farming technologies, and public spending on productivity-enhancing investments in the agricultural sector.

Other Key Results in Policy

Additional key FY 2006 results in improving the enabling environment include the following.

Zambia. USAID is now one of three "Lead Donors" in the agricultural sector and has engaged in high-level policy dialogue with the Zambian government. It has also actively engaged in preparations for the launch of CAADP in Zambia, in close consultation with other donors and COMESA. USAID/Zambia's warehouse receipt system achieved significant results, indicating that the potential for the system to succeed is enormous if government's role in the market is reduced. A total of 19,879 metric tones of maize were deposited, 12,300 by smallholder farmers and 7,579 by commercial farmers and traders. A total of \$909,480 in finance was accessed against warehouse receipts by commercial farmers and traders. The program has been able to stimulate commercial bank lending. Four of the largest banks in Zambia are participating in the Development Credit Authority facility (\$16.5 million). The warehouse receipt system also creates a price discovery mechanism and promotes the use of commodity grades and standards.

Mozambique. USAID supported development of the national Agricultural Household Income Survey (known by its Portuguese Acronym TIA). Surveys conducted in 1996, 2002, 2003, 2005, and 2006 provide extensive empirical data with which to chart the evolution of rural households. TIA is now institutionalized at the Ministry of Agriculture and available to stakeholders in the sector.

West Africa. Initial versions of a subregional portal Website and national focal point portal website have been developed for sharing agricultural technology and related information among national agricultural research institutes (NARIs) and other professionals to improve knowledge in science and technology.

Stakeholders Deploy Analysis to Stay in Business

USAID/Mozambique addressed a policy threat in 2006 that could have hurt smallholders disproportionately. USAID participated in an open debate to reformulate the labor law to make Mozambican businesses more competitive. The law as currently drafted would make rural enterprises uncompetitive by maintaining an artificially high wage and benefit package. The USAID-assisted cashew processing industry association has started contributing actively to the debate. Armed with production cost data, industry members are able to prove that the draft legislation would inevitably cause their firms to close.

TABLE 15: PROGRESS ON POLICY REFORM BY POLICY CATEGORY IN 2006

Policy	Country/ Region	Baseline Year	Status - Start of FY 06	Status - End of FY 06	Number Steps' Progress	Achieved Target?	Achieved Target (%)	Steps per Policy
Agricultural Market Standards and Regulations Policies								
Tariff structure for competitiveness	Ghana	2005	New	Analysis	1	Y		
Trade desk at Ministry of Foreign Affairs	Ghana	2005	New	Discontinued	0	N		
Foreign exchange bill	Ghana	2005	New	Proposal	3	N		
Trade Sector Support Program (TSSP)	Ghana	2005	New	Analysis	1	Y		
Pesticide regulation reform	Ghana	2005	New	Proposal	3	N		
New standards for exported mangoes	Mali	2005	New	Approval	4	Y		
New rice grades and standards	Mali	2005	Analysis	Proposal	2	N		
New potato grades and standards	Mali	2005	New	Proposal	3	N		
Reform of agricultural export rules	Mali	2005	Proposal	Approval	1	Y		
Common biosafety regulation for CILSS	West Africa	2005	Analysis	Approval	3	Y		
Common regulations for conventional and transgenic seeds in CILSS	West Africa	2005	Analysis	Approval	3	Y		
Financing policy and mechanisms to support competitive economic growth	Uganda	2004	Proposal	Approval	1	N		
Import duty and VAT on gunny sacks used for coffee and other exports	Uganda	2004	Proposal	Approval	1	Y		
Trade policy formulation	Uganda	2004	Proposal	Proposal	0	N		
Reduction of proposed levy on fish catch and exports in Fisheries Authority Bill	Uganda	2004	Proposal	Approval	1	Y		
Zero VAT on export handling services at Entebbe airport for fresh produce	Uganda	2004	Proposal	Approval	1	N		
Removal of VAT on agricultural inputs	Zambia	2005	Analysis	Approval	3	Y		
Agricultural Market Development Plan	Zambia	2005	Analysis	Approval	3	Y		
Agricultural Inputs Marketing Plan	Zambia	2005	Analysis	Dialogue	1	Y		
Regional seed policy harmonization	Southern Africa	2005	Dialogue	Dialogue	0	N		
Seed policy harmonization procedures manuals	Southern Africa	2005	New	Dialogue	2	N		
Common set of seed certification standards	Southern Africa	2005	New	Approval	4	Y		
Reduced quarantine pest list	Southern Africa	2005	New	Approval	4	Y		
Subtotal Agricultural Market Standards and Regulations Policies	Number of Policies: 23				45	13	57%	2.0

TABLE 15: PROGRESS ON POLICY REFORM BY POLICY CATEGORY IN 2006 (cont'd)

Policy	Country/ Region	Baseline Year	Status - Start of FY 06	Status - End of FY 06	Number Steps' Progress	Achieved Target?	Achieved Target (%)	Steps per Policy
Food Policies								
Ghana Poverty Reduction Strategy	Ghana	2005	New	Approval	4	N		
Subtotal Food Policies	Number of Policies: 1				4	0	0%	4.0
Public Investment Policies								
Review of FASDEP agricultural policy	Ghana	2005	New	Proposal	3	Y		
Partnership for port cargo handling	Ghana	2005	New	Implementation	5	Y		
Creation of a new investment promotion agency	Mali	2004	Analysis	Approval	3	Y		
Biotech/Biosafety directive for research	Mali	2004	Analysis	Proposal	2	N		
Creation of a micro-finance promotion Unit	Mali	2004	Analysis	Approval	3	Y		
Agricultural Policy of the West African Economic Community	West Africa	2004	Approval	Implementation	1	Y		
Reform of the investment incentives regime	Uganda	2004	Proposal	Proposal	0	N		
Investment and export promotion bill	Uganda	2004	Proposal	Proposal	0	N		
Privatization of Entebbe cold store	Uganda	2004	Dialogue	Dialogue	0	N		
Institutionalization of Inter Institutional Trade Committee	Uganda	2004	Proposal	Proposal	0	N		
New plant variety protection legislation	Southern Africa	2005	New	Dialogue	2	Y		
Regional variety registration system	Southern Africa	2005	New	Approval	4	Y		
Subtotal Public Investment Policies	Number of Policies: 12				23	7	58%	1.9
Total	Number of Policies: 36				72	20	56%	2.0

Source: Annual M&E reports by IEHA operating units.

Notes: "Steps" are measured using a 6-point scale: New, Analysis, Dialogue, Proposal, Approval, and Implementation. "Targets" are those set in the USAID performance management process.

INCREASED TRADE

IEHA's trade-related programs focus on growing sales by smallholders and increasing exports of targeted commodities, especially into regional markets. Opportunities for increased domestic and international trade are being created through trade policy improvements as well as technical assistance that links producer and trader groups to business development services, to credit, and ultimately to markets. Increased producer revenues from these profitable new opportunities are raising incomes and reducing poverty.

IEHA also helps to implement AGOA by stimulating and facilitating regional trade and trade relations with the United States. The ultimate objective of AGOA is to encourage reform of Africa's economic and commercial regimes in order to help build stronger markets and more effective partners for U.S. firms.

Exports of targeted agricultural products to extra-regional destinations reported by both bilateral and regional missions in FY 2006 were \$812 million, as compared to \$1.02 billion in FY 2005 (see Tables 16 and 17 for exports reported by regional and bilateral missions respectively).¹¹ Vegetables, cashews, coffee, and maize were the most important commodities, with cotton (including textiles), vanilla, livestock, seed, and milk each exceeding \$1 million in export value. The drop in agricultural exports can largely be attributed to a significant decline in cotton exports.

TABLE 16: INTERNATIONAL EXPORTS OF TARGETED AGRICULTURAL PRODUCTS REPORTED BY REGIONAL OPERATING UNITS, FY 2006 (MILLIONS OF US DOLLARS)

Commodity	East Africa	Southern Africa	Total		Percent Change FY 2005-06
			FY 2005	FY 2006	
Coffee	162.1		125.8	162.1	29%
Maize		15.9	4.1	15.9	287%
Cotton	288.5		440.1	288.5	-34%
Indigenous teas		0.702	0.454	0.702	55%
Paprika		0.108	0.095	0.108	13%
Other		0.205	0.060	0.205	233%*
Total	450.6	16.9	570.6	467.5	-18%

Source: Annual M&E reports by IEHA operating units.

* Other Commodities: Percent Change does not include fadogia from Southern Africa; no FY '05 data were reported.

¹¹Target and actual figures aggregate data submitted by regional and bilateral missions; there may be a small amount of double counting.

TABLE 17: INTERNATIONAL EXPORTS OF TARGETED AGRICULTURAL PRODUCTS REPORTED BY BILATERAL OPERATING UNITS, FY 2006 (MILLIONS OF US DOLLARS)

Commodity	Ghana	Kenya	Uganda	Zambia*	Total		Change FY 2005-2006**
					FY 2005	FY 2006	
Vegetables	8.4	238.0		20.1	236.2	266.5	4.2%
Cashews		23.0			14.0	23.0	39.1%
Coffee			5.4	12.9	1.1	18.3	79.0%
Maize			0.877		0.6	0.9	26.6%
Pineapple	16.2				15.0	16.2	7.8%
Cotton			8.5	0.025	9.1	8.6	-6.1%
Vanilla			5.5		3.2	5.5	42.0%
Livestock				2.5		2.5	
Seed				1.5		1.5	
Honey				0.485		0.485	
Paprika				0.510		0.510	
Avocados		0.308			0.213	0.308	31.0%
Other	0.131				0.225	0.131	-76.4%
Total	24.7	261.3	20.3	38.0	449.6	344.4	-46.5%

Source: Annual M&E reports by IEHA operating units.

* 2005 data include \$170 million in Zambian international exports not disaggregated by commodity.

** Change was calculated using the FY 2005 and FY 2006 data for each operating unit; where FY 2005 data were missing, the corresponding FY 2006 data were omitted from the calculation.

Highlights of IEHA's progress in fostering international trade include:

Zambia. Despite being affected by a local currency appreciation, the agricultural sector saw new investments, e.g., Fresh Pikt, a fresh fruit and vegetable company. During the year, assistance was provided to the Zambia Coffee Growers Association to carry out market promotion activities, including attendance at the World Wildest Coffee trade show in Tanzania. For most of the year, maize exports were banned and hence the focus was on the export of maize seed. Specific promotion activities and buyer linkages were provided for markets in the Democratic Republic of Congo, Angola, South Africa, and Malawi. Activities in livestock focused on promoting beef and poultry to markets in the DR Congo and Angola, and leather products in South Africa.

Ghana. In FY 2006, assisted firms generated \$24.7 million, an increase of \$5.4 million and 8 percent over the target, due to high export sales from association members. Commodities exported include fresh pineapples, papaya, chili pepper, new okra varieties introduced by USAID, and Asian vegetables.

Kenya. The volume and value of avocado exports to the international market has increased dramatically, reaching 1.9 million tons worth \$308,000 from 1.5 million tons valued at \$213,000 in FY 2005.

Mali. The total volume of mangoes exported reached a record-breaking 3,870 tons this year, 30 percent more than last year.

East Africa. Compared to the baseline of 2001, the combined formal trade reported through COMESA in the targeted commodities increased by more than 57 percent through December 2005.

Exports of targeted agricultural products to intra-regional destinations reported by all missions in FY 2006 were \$435 million, compared to \$377 million in FY 2005 (see Table 18).¹² Fertilizer and cattle were the most important commodities, with cotton, maize, rice, onions, dairy products, and cassava each also exceeding \$3 million in value.

TABLE 18: INTRA-REGIONAL EXPORTS OF TARGETED AGRICULTURAL PRODUCTS FROM IEHA COUNTRIES, FY 2006 (MILLIONS OF US DOLLARS)

Commodity	West Africa	East Africa	Regional Total		Change FY 2005-2006*	Mali	Kenya	Uganda	Bilateral Total		Change FY 2005-2006
			FY 06	FY 05					FY 06	FY 05	
Fertilizer	189.4		189.4	149.5	27%						
Cattle	119.8		119.8	102.2	17%						
Cotton		37.2	37.2	32.3	15%						
Maize	12.8	19.6	32.3	53.4	-40%			17.6	17.6	11.5	53%
Rice	15.9		15.9	1.2	1262%						
Onions	9.8		9.8	2.2	345%						
Dairy		6.9	6.9	7.2	-5%						
Cassava	3.7		3.7	2.4	59%						
Milk							1.4		1.4	0.714	99%
Potatoes						0.748			0.748	0.454	65%
Shea	0.214		0.214	13.6	-98%						
Total	351.6	63.7	415.3	363.9	14%	0.748	1.4	17.6	19.7	12.6	56%

Source: Annual M&E reports by IEHA operating units.

* Change was calculated using the FY 2005 and FY 2006 data for each operating unit; where FY 2005 data were missing, the corresponding FY 2006 data were omitted from the calculation.

Highlights of IEHA's progress in fostering intra-regional trade include:

Kenya. Exports of dairy products to the East African region rose from 750 tons valued at \$714,285 in FY 2005 to 1,000 tons worth \$1.4 million in FY 2006.

West Africa. With USAID support and as part of its larger trade promotion efforts, members of regional trading networks coordinated the supply of sheep and cattle from Burkina Faso, Mali, Niger, and Mauritania for markets in Abidjan, Cote d'Ivoire and Dakar, Senegal for the Eid-Il-Fitr (Tabaski), resulting in more than \$17 million in revenue.

Southern Africa. In Namibia, six members of the Mariculture Association sold 80 tons of oysters worth \$360,000; in South Africa small producers of pond fish produced more than 150 tons selling for over \$610,000.

Linking Farms and Firms to Markets

For smallholders who are newly commercializing, meeting the needs of the domestic market is often easier and less risky than pursuing export markets. In 2006, IEHA assisted more than 8,300 producer and trader organizations and more than 1,300 women's organizations in trade- and productivity-related areas (see Table

¹² Target and actual figures aggregate data submitted by regional and bilateral missions; there may be a small amount of double counting.

19), boosting their competitiveness, as shown by their increased sales. The vast majority of sales by producers are to other market participants within the country. In 2006 IEHA-assisted smallholders made nearly \$190 million in sales of various commodities,¹³ primary among which were maize, cotton, pineapples, rice, and vegetables. Also important were peanuts, cassava, sesame, vanilla, coffee, honey, sunflower, and beef (see Table 20). IEHA has achieved these results by linking smallholder producers to markets and by strengthening producer organizations. These sales suggest that transformation (from subsistence to commercial agriculture) is underway and that, with IEHA assistance, smallholders are becoming increasingly competitive.

TABLE 19: NUMBERS OF ORGANIZATIONS AND FIRMS ASSISTED BY IEHA

Output Indicator	Target for FY 2006	Total for FY 2006	Percentage Target Achieved*
Number of producers' organizations, water users' associations, trade and business associations, and community-based organizations assisted by IEHA	6,087	8,376	135%
Number of women's organizations/associations assisted by IEHA	806	1,331	157%
Number of agriculture-related firms benefiting directly from IEHA interventions	1,770	2,524	140%

Source: Annual M&E reports by IEHA operating units.

* Percent of Target Achieved is calculated using target and actual data from each IEHA operating unit. If an operating unit did not submit a target, then that unit's "actual" was excluded from the calculation.

TABLE 20: VALUE OF AGRICULTURAL PRODUCTS PURCHASED FROM SMALLHOLDERS, IEHA COUNTRIES, FY 2006 (MILLIONS OF US DOLLARS)

Commodity	Southern Africa			Ghana	Kenya	Mali	Mozambique	Uganda	Zambia	Total, Bilateral Operating Units		
	FY 2005	FY 2006	Change							FY 2005	FY 2006	Change*
Maize					67.1		.597	.877		30.3	68.5	126%
Cotton								8.5	19.8	10.4	28.3	173%
Pineapple				16.7						15.5	16.7	7%
Rice						.554		11.5		8.5	12.0	42%
Vegetables	.01	.03	205%	8.4	1.2				1.4	5.6	11.0	96%
Peanuts		10.2					.496			.103	0.5	380%
Cassava	4.3	8.1	87%									
Sesame		5.8					1.0			1.1	1.0	-8%
Vanilla								5.5		3.2	5.5	72%
Coffee								5.4	.006	1.1	5.4	377%
Cashews		.371					3.8			2.9	3.8	31%
Honey									4.0		4.0	
Sunflower								2.9		1.8	2.9	59%
Beef									1.5		1.5	
Other		1.6		.184	.371	.491	.914		.213	1.6	2.2	35%
Total	4.4	26.2	501%	25.2	68.7	1.0	6.9	34.6	26.8	82.1	163.2	99%

Source: Annual M&E reports by IEHA operating units.

* Change was calculated using the FY 2005 and FY 2006 data for each; where FY 2005 data were missing, the corresponding FY 2006 data were omitted from the calculation.

¹³Target and actual figures aggregate data submitted by regional and bilateral missions; there may be a small amount of double counting.

In Ghana, the main commodities sold on the domestic market were fresh and processed pineapple (Smooth Cayenne), papaya (Solo), new hybrid okra, and baby corn. Important smallholder beneficiaries were mango and pineapple (MD2) producer groups. In Kenya, the increased domestic trade in avocados arose largely from the establishment of three avocado oil processing plants that started operations in May 2005. In Zambia, in one major activity, sales of targeted commodities (cotton, paprika, maize, coffee, cassava, livestock, horticulture, and honey) by assisted smallholders amounted to \$26.8 million in 2006, exceeding the target by 94 percent.

More Competitive Ugandan Coffee Smallholders Cash In

USAID/Uganda helps the private sector collaborate as "competitive clusters." Engaging with business leaders and sector associations, and in collaboration with other development partners, USAID facilitated the development of national business plans/strategies in five of the eight subsectors (coffee, cotton, fish, tourism, and floriculture). Assistance to exporter firms was provided through umbrella associations; in the case of coffee, it reached nine coffee exporters. As an example of the benefits of this approach, in 2006 assisted smallholders sold coffee worth \$5.4 million as exports to the EU and Sudan, compared to \$1.1 million in the previous year.

The following subsections detail IEHA's specific accomplishments in facilitating access to credit, in linking firms to business development services, and in helping producers and exporters to succeed at meeting international product standards.

Trade-Supporting Programs Succeeding

IEHA is building institutions, transferring critical market-related knowledge, and developing services that are all targeted toward increasing sales and trade all along the value chain from smallholders to exporters. Facilitating access to credit and business development services and helping firms and farmers to meet international quality standards are key steps that lead to increased sales, exports, and income.

Facilitating Access to Credit. Credit is often a critical constraint to increasing productivity and sales. In FY 2006, IEHA program beneficiaries in Mali and Zambia accessed \$5.3 million of credit, about three times the amount in FY 2005 (see Table 21). In Mali, the Rice Credit Storage program, in which 53 associations were involved (630 women and 2,514 men), received a total of \$298,310 in credit. Two potato cooperatives with 148 male members and one female cooperative with 15 members took loans through a microfinance institution totaling about \$145,000.

- **Uganda.** A warehouse receipts system for small farmers is operated by the Kapchorwa Commercial Farmers' Association (KACOFA); it received \$123,333 in trade finance through loans from Stanbic Bank against maize deposited in a collaterally managed warehouse in 2006. A tripartite deal was negotiated with the World Food Program (WFP), USAID, and COTECNA, an international collateral management manager. As a result, KACOFA received a lease for ten maize shellers, a 20-ton maize dryer, a 2,000-ton maize supply contract with WFP, and a line of credit of \$1 million with Stanbic. USAID provided technical support in trade finance to review the legal environment and facilitate design of the bank's operational procedures for structured small- and medium-size enterprise trade finance.

TABLE 21: VALUE OF CREDIT ACCESSED BY IEHA-ASSISTED BENEFICIARIES, BY GENDER, FY 2006 (US DOLLARS)

Country	Male		Female		Total	
	FY 2005	FY 2006	FY 2005	FY 2006	FY 2005	FY 2006
Mali	859,000	3,665,117	36,000	337,626	895,000	4,002,743
Zambia	211,270	581,920	492,964	249,394	704,234	831,314
Total	1,170,284	4,624,447	543,743	653,766	1,714,027	5,278,213

Source: Annual M&E reports by IEHA operating units.

Under USAID/Uganda's Rural Savings Promotion and Enhancement of Enterprise Development program, the number of new borrowers increased from 5,956 in FY 2005 to 32,839 in 2006; their loans were valued at \$19,531,932, of which 60 percent went to agricultural enterprises. Through USAID/Zambia's Production, Finance and Technology activity, 18,534 smallholder farmers and small- and medium-size enterprises were assisted to access value chain finance amounting to \$627,315 and leading to \$3.75 million in sales of targeted agricultural commodities in FY 2006.

Taking Care of Business with BDS. IEHA's business development services (BDS) support enterprise development to help generate additional sales and income. In 2006, IEHA missions reported that about 79,000 assisted enterprises had accessed BDS (see Table 22). In Kenya, key business development services accessed by farmers include material inputs, crop husbandry and extension, "farming as a business" skills development, business linkages, cluster development, bulking, and product branding.

TABLE 22: NUMBERS OF IEHA-ASSISTED ENTERPRISES ACCESSING BUSINESS DEVELOPMENT SERVICES, FY 2006

Country	Male-Headed		Female-Headed		Total	
	FY 2005	FY 2006	FY 2005	FY 2006	FY 2005	FY 2006
Ghana	6	47			6	47
Kenya	29,503	44,334	9,825	14,758	39,328	59,092
Mali	339	532	295	272	634	804
Zambia	10,503	13,806	4,051	5,017	14,554	18,823
Total	40,351	58,719	14,171	20,047	54,522	78,766

Source: Annual M&E reports by IEHA operating units.

Meeting Tough International Standards. IEHA partners are working with producers, exporters, and their associations to help them meet international commodity and management standards like Euro-Retailer Produce Working Group Good Agricultural Practices (EurepGAP), Hazard Analysis and Critical Control Point, and FAIRTRADE. Meeting these standards is often required to enter or remain in an export market. In 2006, 26 firms in Ghana were assisted to obtain EurepGap and FAIRTRADE certification. In addition, 25 mango producers from two assisted associations are undergoing the EurepGap Option 2 certification program. In Mali, one exporter group (which included 33 businesses) obtained EurepGap certification with USAID technical assistance and successfully exported 1,880 tons of certified mangoes to Europe.

Building trade capacity. IEHA supports capacity building efforts in the private sector that create skills and opportunities to increase agricultural trade. In Ghana, USAID works to help create and develop producer and trade associations in three key commodity areas: horticulture/vegetables, pineapples, and mangoes. Over the past year, USAID has supported seven associations, enhancing their capacity to: meet market demands in quality, volume, efficient logistics, and price; access market information and training in good agricultural practices; and develop linkages to regional and international markets. Management systems were introduced and tested, and they then served as the basis for transfer to other pineapple, mango, and papaya industries' associations. USAID/Ghana also helped form two mango associations and GAVEX, a key vegetable exporter association. The institutional capacity of supported associations is evaluated periodically using the PIVA assessment tool. Of the seven associations supported, the two mango associations formed in 2005 exhibited substantial increases in institutional capacity (91 percent and 67 percent).

Reliable Information Means Better Prices for Farmers

Tradenet is a software platform that aims to make African agricultural markets more transparent and efficient. It supports providing farmers and other stakeholders with regular and reliable information to improve their negotiating position. It promotes better decision making about what to produce, where to sell, and when to sell or store in order to maximize profits.

Tradenet was developed through collaboration among the Ghanaian firm BusyLab Ltd, the International Center for Tropical Agriculture (CIAT), and Uganda's market information service. The first release came on-line in June 2004. The service is now being used by 11 countries: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Mali, Niger, Nigeria, Senegal, Togo, and Uganda.

A recent impact analysis of the Ugandan market information service, which uses Tradenet, found that virtually all farmers were able to access market information. It found that 94 percent of farmers interviewed owned a radio and more surprisingly that 25 percent of farmers owned mobile phones. Radio was the preferred source of market information, with approximately 68 percent of farmers regularly accessing market information through market news radio programs. Up to 52 percent of farmers indicated that receiving market information had a positive impact on their business, and 39 percent stated it had a lot of impact. Individual farmers who were able to use market information in negotiating for better prices made average gains of 15-20 percent on prevailing market prices, whereas farmers in groups made average gains of 20-30 percent.

USAID/West Africa supports Tradenet through its regional market information project, Network of Regional Market Information Systems and Traders' Organizations of West Africa (MISTOWA).

USAID/Mali worked to enhance the capacity of five categories of local institutional partners: producers' associations; mango traders' associations; potato traders' associations; a rice traders' association; and the Ministry of Commerce. Two USAID-sponsored projects have enhanced the capacity of these associations by providing training in commercial transportation and enterprise management, regulatory texts, marketing procedures, and business plan development. The institutional capacity of supported associations is evaluated periodically using the PIVA assessment tool. As a result of IEHA support, the producers' associations improved their PIVA scores by more than 54 percent, the mango traders' associations by more than 21 percent, and the rice traders' association by 20 percent. In the course of the year, the potato traders associations increased their scores from zero to 135 out of a possible total of 464.

Fostering linkages between producers and the rest of the commodity market chain, USAID/Uganda adopted new strategies for the development of producer organizations serving regional and international market requirements. At least 36,000 new coffee farmers were linked to nine exporters and provided improved production technologies. At least 50,000 newly assisted cotton farmers were linked to ginner-exporters with technical and managerial support via creation of producer organizations, which improved the terms under which farmers market to the ginners.

REGIONAL LEVEL RESULTS

Subregional cooperation is key to sustainable economic development, and to poverty and hunger reduction. IEHA is designed to foster subregional and continent-wide spillover effects that will multiply the impact of IEHA investments. Indeed, these principles are behind IEHA's strong support for regional platforms designed to implement CAADP. For a full description of the rationale for this support and its results, please see section 6.

Intra-regional events and effects and their spillovers are often not visible in national statistics, but they are a critical part of IEHA's strategy for maximizing the impact of its investments. A discussion of the trends in agricultural productivity and their relationship to regional dynamics is found in section 5.

ASSISTING THE VULNERABLE

The vulnerable are hungry individuals, households, and groups that are unable to meet their basic food needs and are likely to experience continuing or increased difficulty in meeting these needs. They live where highly inadequate or highly variable food availability and food access conditions exist, exacerbated by natural and/or man-made disasters such as conflict. These chronically food-insecure conditions require solutions that will improve and protect the production and market structures and systems that will improve their ability to acquire more income and food for feeding themselves.

The international community has developed a two-pronged approach to reduce hunger in vulnerable African households in the absence of permanent external assistance. The first element of this approach is to provide the vulnerable with the improved means and ability to access the food that they require to feed themselves. FFP efforts in support of IEHA improve the means and ability of vulnerable households to produce more food, earn more income, and thus feed their households better and reduce their food insecurity. The second element is to improve the food-related institutional and societal structures and systems upon which vulnerable individuals, household, and groups rely for feeding their households. Improving food-related market structures and systems to benefit vulnerable buyers is especially important given the evidence that more than 80 percent of farm households in three IEHA countries (Mozambique, Zambia, and Malawi) are either buyers or net buyers of maize, the mainstay of their diet.

IEHA's activities related to policy promotion, productivity-enhancement, and the strengthening of markets, particularly those supported by FFP, increase the nutrition available to the chronically food insecure. As these programs help stabilize the availability of calories and protein at more adequate levels, the reduction in hunger that occurs not only eliminates a potential source of conflict, but also becomes a key prerequisite for transformational development. FFP combines its efforts so that not only those women and children who are malnourished today are able to eat the high-quality foods that they require, but that vulnerable households and groups also

improve their ability to feed themselves better in the future. In FY 2006, IEHA worked with more than 1.2 million vulnerable households to build assets that help them to manage through shocks and reduce food insecurity (see Table 23).

TABLE 23: VULNERABLE HOUSEHOLDS BENEFITING FROM IEHA

Output Indicator	Target for FY 2006	Total for FY 2006	Percentage of Target Achieved
Number of vulnerable households benefiting directly from interventions	1,329,411	1,250,914	94%

Source: Annual M&E reports by IEHA operating units.

* Percent of Target Achieved is calculated using target and actual data from each IEHA operating unit. If an operating unit did not submit a target, then that unit's "actual" was excluded from the calculation.

- **Uganda:** \$12 million of Title II non-emergency food aid provides benefits to approximately 120,000 farmers who were able to feed themselves better in 2006. Training was provided in nutrition education, agronomy, farming as a business, post-harvest handling, and marketing. The rehabilitation of 133.5 kilometers of rural feeder roads increased market access, which helped these rural communities not only to better feed themselves, but others as well.
- **Mozambique:** The proceeds from the monetization of Title II commodities helped farm households feed themselves better in 2006. For example, Africare provided skill training in improved planting practices, storage techniques, soil fertility, and sustainable agriculture, as well as erosion control and controlled burning. Evaluation results showed that 70 percent of the households receiving training

had adopted at least two improved planting practices, compared to 38 percent of households at the time of the baseline survey. As a result, in 2006, farm households in this area were able to feed themselves at adequate levels longer during the year (10.2 months on average) than in 2002 (8.8 months on average). CARE, Save the Children, and the International Institute of Tropical Agriculture (IITA) also worked to disseminate cassava varieties resistant to mosaic disease in vulnerable areas. As a result, about 100,000 agricultural households increased production by an estimated \$65 million, resulting in higher household income and thus more income and food.

- **Southern Africa:** Farmers received starter cassava planting material along with training in cassava silage making and utilization, enabling them to produce cassava silage for dairy feed. As a result, vulnerable farmers had more income and milk for their household members as milk yields increased at the farm level from 7 to 12 liters per animal per day.

Title II programs in Ghana have also had a significant impact on poverty and hunger. Table 24 summarizes the accomplishments of one such program, Adventist Development and Relief Agency (ADRA), in key result areas like productivity and links to markets, and the ultimate benefits realized in reduced hunger.

TABLE 24: SELECTED PERFORMANCE INDICATORS, ADRA, GHANA, 2002-2006

Indicator	Baseline (2001)	FY 2005 Achieved	FY 2006 Target	FY 2006 Achieved	Achieved vs. Target
Percent of grain production stored in promoted storage units	25	58	35	38	108%
Old farmers	5	58	38	55	144%
New farmers					
Percent of farmers adopting natural resource management practices	32	91	60	94	157%
Old farmers	10	98	50	93	186%
New farmers					
Number of hectares under natural resource management practices	5,760	11,459	10,800	12,919	120%
Yield of promoted crops, kg/acre					
Maize	400	984	116	900	1114%
Soy bean	200	451	107	450	349%
Percent of farmer groups linked to marketing agencies	376	780	800	835	104%
Old farmer groups	0	461	400	459	115%
New farmer groups					
Percent of household crop output marketed					
Old farmers	30	62	40	72	180%
New farmers	15	63	40	59	148%
Gross cash value of agriculture produce of targeted farmers (millions)	\$1.9	\$6.8	\$4.3	\$9.8	227%
Percent children 0-6 mos. only breastfed	30		40	74	185%
Months of household food shortage	4		2	1.3	154%
Prevalence of stunting	20		10	8.5	118%
Prevalence of underweight	30	20	20	18.9	106%

Source: ADRA 2006 Results Report.



In sub-Saharan Africa, people living in rural areas and relying on agriculture account for the largest share of the vulnerable population. The critical policy question is, What interventions, instruments, or strategies can reach the largest number of the vulnerable? IEHA is addressing this question through analysis and through dialogue with its partners. An initial investigation of strategic options and related questions is presented in Annex 3.

CONCLUSION

In sum, in 2006 IEHA efforts have generated significant impacts and changes in behavior at the individual, household, community, and country levels. Collectively, these efforts make successful and strategically important contributions to economic growth and poverty. They also serve as significant examples about how agriculture can and does improve the wealth and well-being of African rural households. IEHA, by itself, does not provide sufficient resources to achieve the higher-level objectives and goals of 6 percent agricultural growth. It

was never intended to do so. It is, however, an important part of the agricultural reform and development process in Africa, which is showing real signs of taking root and stimulating transformation.

4. TRENDS IN THE INCOME OF RURAL HOUSEHOLDS

IEHA's SO is to increase the incomes of rural households in sub-Saharan Africa. Why was this SO chosen? Will tracking income changes give us a good idea of IEHA's progress? More specifically, what do we mean by "rural household income"?

RURAL HOUSEHOLD INCOME

Income is defined as the amount of money or its equivalent received during a period of time in exchange for labor or services; from the sale of goods or property; as profit from financial investments; or in the form of other transfers such as gifts, remittances, and pensions. In the case of many of IEHA's target beneficiaries, smallholders, increased income is expected to come mostly from the sale of agricultural products (goods) produced on their farms. However, we also measure as part of their income the value of any food or other agricultural products that they produce but do not sell, e.g., food that they eat. Other rural beneficiaries include traders, processors, input suppliers, and the like who increase their profits as agriculture grows. Their incomes are also measured as part of rural household income.

IEHA intends to carefully track rural income as one part of its comprehensive M&E system.¹⁴ IEHA management, and African policymakers and regional organizations such as CAADP need to know whether IEHA programs and their own aligned efforts at stimulating agricultural growth are having their intended impact of reducing hunger and poverty by increasing the earnings of the poor.

What are the primary drivers (determinants) of income? The most important are prices and output levels. For farm households, output levels are related to the household's amounts of land, labor, and capital, including human capital in the form of knowledge, which is a main factor that IEHA seeks to increase. Income is also affected by households' access to infrastructure, extension, and marketing services. Prices received by smallholders will depend on the policy environment and on the efficiency of markets, two other important target areas for IEHA.

As was mentioned above, rural household income includes both farm and non-farm income of households in rural areas. There are very strong linkages between these incomes. These linkages include those through agricultural production "backward" to input suppliers and "forward" to output marketers and processors.



All income measurements reported in this section are "real" (deflated) income, so that the effect of general price inflation is not mistaken for an increase in purchasing power.

There are also very strong linkages via farm household consumption. When their farm income increases, African farm households increase their expenditures on non-farm goods and services produced mostly in the surrounding area. These consumption expenditures lead to increases in income in rural non-farming households, and these increases are much larger in total than the increase in farm income itself. It is also important to remember that consumption here means all goods and services purchased, not simply human consumption of items like food. Purchases of rurally located services like housing improvement, clothes tailoring, and the like often weigh significantly in the marginal (additional) expenditures by farm households and other rural residents.

MEASURING RURAL HOUSEHOLD INCOME

The best source of data on household income is national household (income and expenditure/consumption or living standards measurement) surveys, for consistent comparison of income over time. These are carried out periodically in virtually all countries. Because of their great expense, they are not carried out annually, so there will always be gaps in the data available from these surveys. For the IEHA countries, Table 25 shows when during the last 20 years such surveys were conducted.

TABLE 25: YEARS WHEN HOUSEHOLD SURVEYS WERE CONDUCTED, IEHA COUNTRIES

Country	Year of Household Survey Data
Ghana	1987/88, 1988/89, 1991/92, 1998/99, 2005/06 ¹
Kenya	1991/92, 1994, 1997, 2006 ²
Mali	1994, 2001
Mozambique	1996/97, 2002/03, 2005/06 ¹
Uganda	1989, 1992/93, 1996, 1999/2000, 2002/03, 2005/06
Zambia	1991, 1993, 1996, 1998, 2003

¹ Data are not available yet

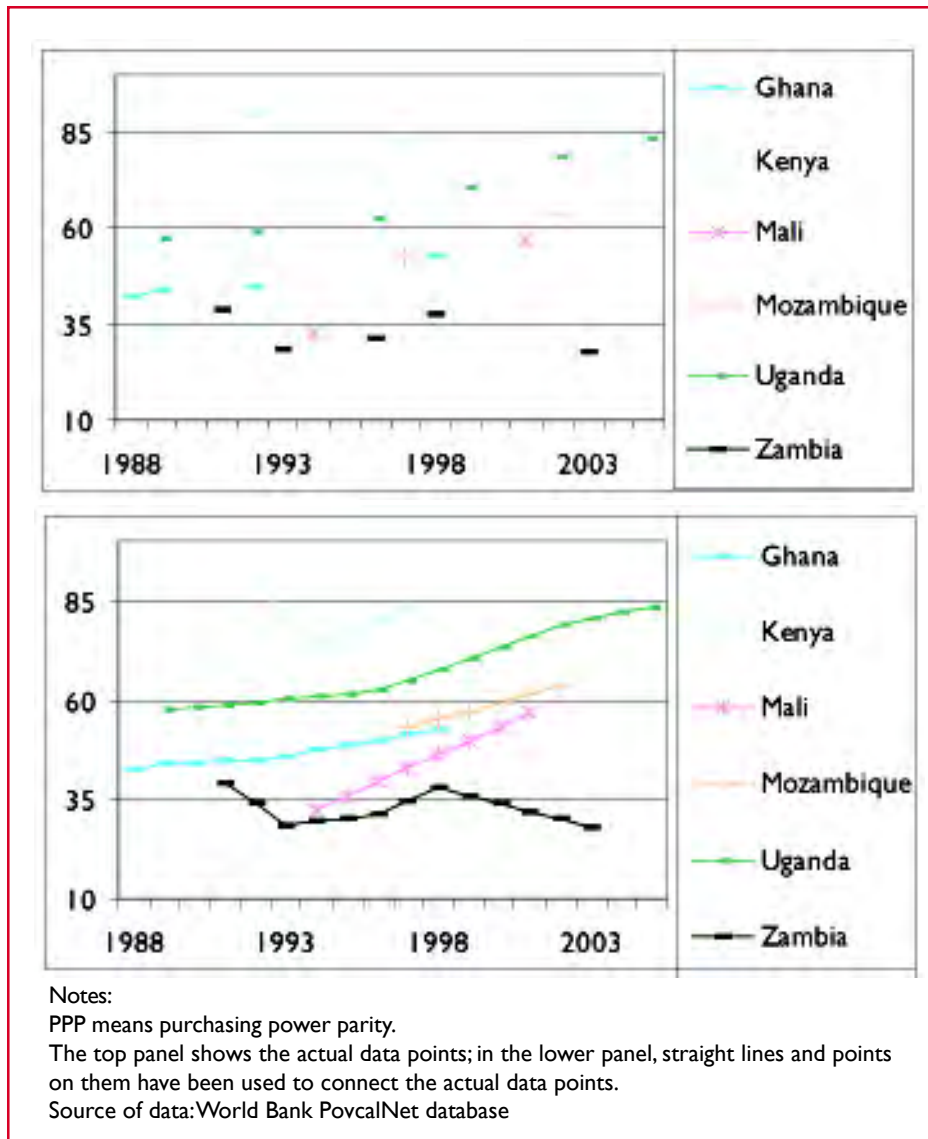
² Data collection is ongoing

If we want to see what was happening to household income in other years, what can we do? One thing we can do is to develop a mathematical model (a set of relationships) between another set of data (called proxy variables) and income, and then use it to estimate income in the years for which there was no household survey. Researchers at IFPRI developed such a model explicitly for this purpose (Benin 2007).

RECENT TRENDS IN INCOME

What do the data on rural household income for IEHA countries show? If we look only at the available household survey data on income, there are few conclusions that we can draw. Ghana, Mali, Mozambique, and Uganda experienced a consistent increasing trend in real income, although slightly slower in the case of Ghana. Kenya experienced an initially declining trend but started to recover starting in the mid-1990s (see Figure 3). Zambia's data show oscillations: decline, recovery, and decline again.

FIGURE 3: HOUSEHOLD MONTHLY INCOME PER CAPITA (1993 US\$ PPP)

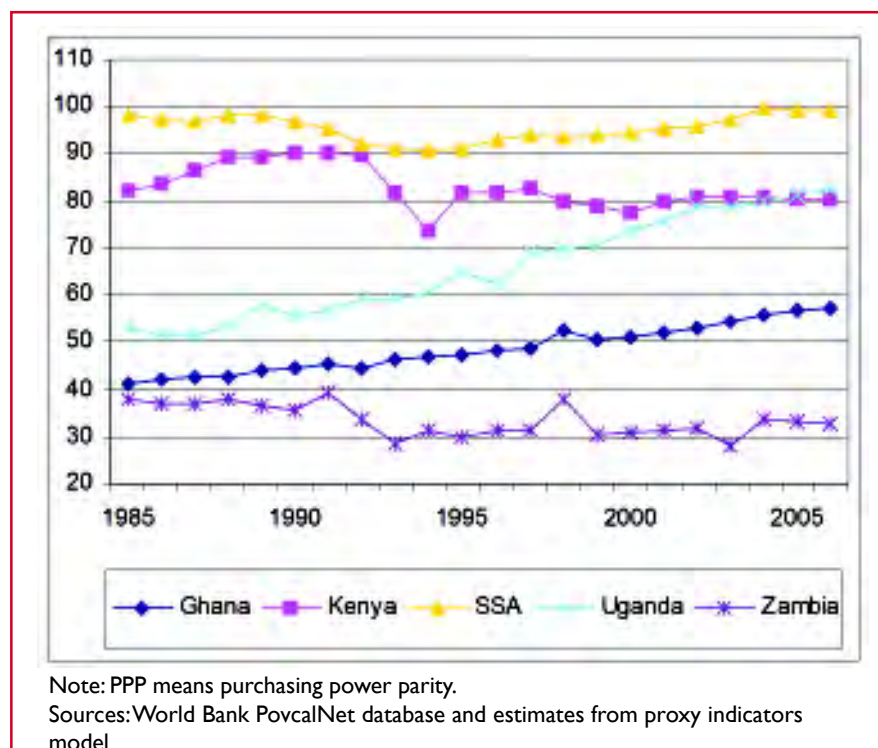


Using the proxy indicators model, we can see what was happening to household income in the intervening years, and we can extend our estimates of income through 2006. Those estimates of income are shown in Figure 4. Looking at the level of income in the IEHA countries and sub-Saharan Africa overall, we can see that:

- Household monthly income per capita for the IEHA countries is lower than the average for sub-Saharan Africa, with Zambia faring worst; and
- Ghana and Uganda show consistent increases in income, while Kenya and Zambia show stagnation.¹⁵

¹⁵ Mali and Mozambique do not have enough data points to use the proxy indicators model.

FIGURE 4: ESTIMATED HOUSEHOLD MONTHLY INCOME PER CAPITA (1993 US\$ PPP)



Looking more closely at five-year periods, there appears to have been an acceleration of income growth since the mid-1990s in sub-Saharan Africa in general and in Ghana and Uganda in particular. (See Table 26.) Kenya's and Zambia's declining income trends ceased after the mid-1990s.

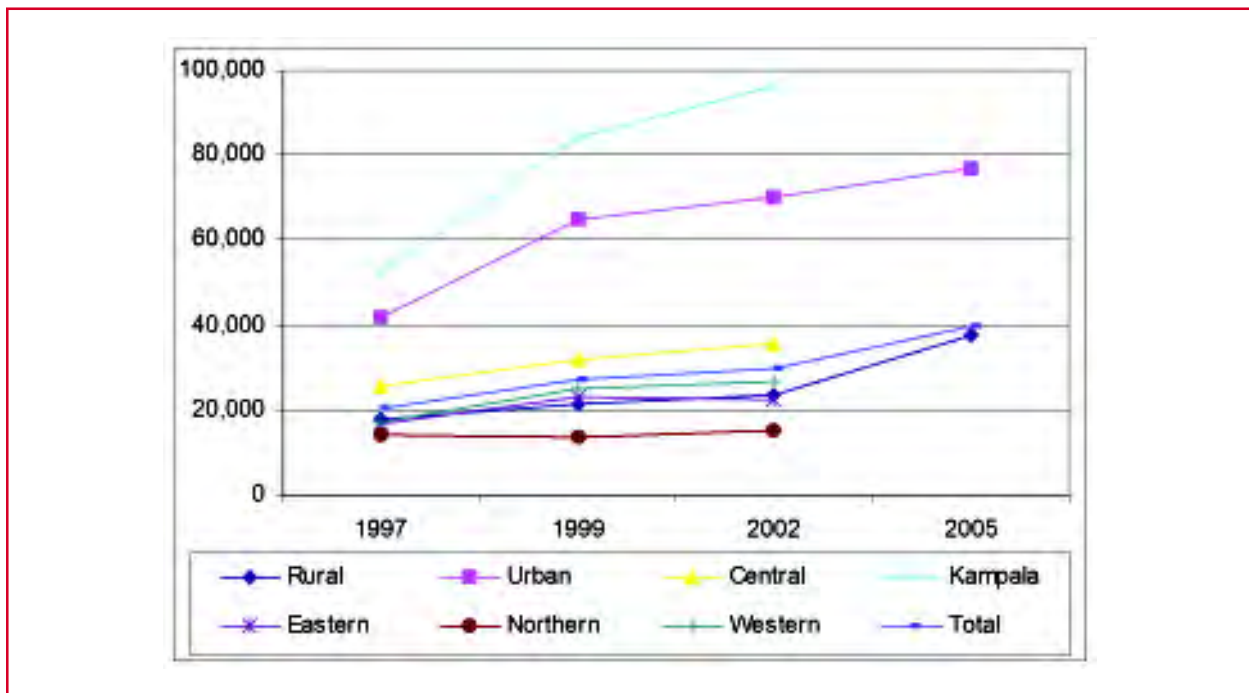
TABLE 26: GROWTH RATES OF ESTIMATED HOUSEHOLD INCOME, 1985-2006, IEHA COUNTRIES AND SUB-SAHARAN AFRICA

Country/ Region	1985-1994		1995-2000		2001-2006	
	Growth rate (%)	R-squared	Growth rate (%)	R-squared	Growth rate (%)	R-squared
Uganda	1.00	0.86	2.04	0.84	1.30	0.92
Ghana	0.61	0.95	0.89	0.69	1.10	0.98
Zambia	-0.81	0.60	0.21	0.02	0.46	0.18
Kenya	-0.42	0.05	-1.00	0.76	0.05	0.03
Sub-Saharan Africa	-0.90	0.78	0.49	0.73	0.93	0.87

The R-squared gives an idea of how strong a trend is shown in the data (the higher the R-squared, the stronger the trend)

Delving deeper than the national level. Available subnational disaggregated data present the opportunity to track rural income at a level that is often comparable to the scope of a development project. IEHA plans to continue its careful monitoring of income by examining income and project results at this level in those countries where such data are available, and through Strategic Analysis and Knowledge Support Systems (SAKSS) it plans to improve the availability of such data where they do not currently exist. Figure 5 shows such disaggregated nominal income in the case of Uganda, which highlights the strong correlation between total and rural household income. Although income is substantially higher in urban than rural areas, there has been accelerated growth in rural income recently, while growth in urban incomes has slowed down.¹⁶

FIGURE 5: TRENDS IN NOMINAL HOUSEHOLD INCOME, SUBNATIONAL REGIONS OF UGANDA, 1997-2005



In sum, the data available on incomes do not allow a disaggregation by district, limiting the comparisons of assisted and non-assisted areas. In 2007, efforts will be taken to deepen analysis, improve data collection, and improve understanding of factors limiting growth in incomes.

We note that in general incomes are improving in sub-Saharan Africa, suggesting that the environment for agricultural growth is improving.

¹⁶ Data for 2005 are preliminary.

5. AGRICULTURAL TRANSFORMATION REDUCES POVERTY AND HUNGER

This section highlights the process of agricultural transformation and its critical importance to transformational development. It shows how agricultural transformation leads to wealth creation and thereby to reductions in poverty and hunger, and how IEHA is achieving significant results through this process. Some examples of these results are presented, both at the project and national levels, along with an update on achievement of the MDGs.

Poverty is a critical constraint on the countries of sub-Saharan Africa, which desire to transform their economies so that their citizens can enjoy improved levels of health, education, and economic well-being. Currently, individuals and governments do not have sufficient assets to achieve this transformation; the economy is not generating enough resources for investments to sustainably change the social and economic circumstances of Africa's rural majority. A pressing need is to improve the performance of firms and financial systems to create the capital to invest.

Compared with other strategies for stimulating growth and transformation, accelerating agricultural growth has the largest impact on economic performance. Its contribution to transformation is to put significant additional resources into the hands of rural residents and national coffers that can then be invested in education and in other social services, and in general to improve lives. These improvements permit individuals to become better citizens and participate in the global development process.

Agricultural growth has this impact through increases in productivity-which does not mean simply increases in farm production. Increases in productivity occur all along the value chain for a commodity. Input suppliers might supply fertilizer in smaller bags for smallholders, production per unit area might increase in quantity or quality-both resulting in higher sale value-and processors might increase throughput in their plants. These and many other improvements in agriculture-related productivity will create more income and more jobs both on farms and in surrounding areas. IEHA is promoting all of these types of improvements. The specifics of the transformation process follow.



AGRICULTURAL TRANSFORMATION

Economic development involves a fundamental restructuring of the economy.¹⁷ It is a process in which agriculture (narrowly defined as production) becomes a relatively smaller share of the economy (employment and output), while at the same time the food and fiber system (defined more broadly, i.e., processing and other value-added activities) continues to grow and develops important linkages to the rest of the economy.

In this context, Staatz defines **agricultural transformation**:

...the process by which agriculture shifts from being dominated by highly diversified, subsistence-oriented farms towards more specialized production oriented towards, and dependent on, markets. The process of agricultural transformation involves a greater reliance on input and output markets ...and increased integration of agriculture with other sectors of the domestic and international economies. ...the source of output growth shifts from expanded use of land and (especially) labor to increased use of knowledge from outside the farm, as embodied in new technologies, management practices, and institutions....

As the economy transforms, there will eventually be a transfer of resources out of agriculture. Increases in agricultural productivity induce and facilitate this process by increasing output (and earnings), while at the same time helping to reduce the price of agricultural products, especially food, relative to those of non-agricultural products.



For this reason, investments to increase productivity are one of IEHA's key thrusts. Another reason is the food price "dilemma," i.e., food prices affect producers and consumers in opposite ways: for consumers higher prices are painful, whereas, to farmers selling surplus production, higher prices are desirable because they increase farmers' incomes. An increase in productivity is the solution to the dilemma because it can lower unit costs of production and preserve farmers' profitability, even in the face of falling output prices.

Structural transformation through increased productivity in the food system is how virtually all countries have progressed from one level to the next along the spectrum of agricultural and economic development. Timmer elaborates this spectrum by differentiating the agricultural transformation into four phases:

- First phase: in which the focus is on getting agriculture moving increasing productivity; net investment in the agricultural sector is inward;

This section relies heavily on Staatz (1994); see also Timmer (1998).

- Second phase: agricultural productivity rises, and labor and financial resources begin to flow out of agriculture to other sectors;
- Third phase: agriculture integrates into the macroeconomy; the absolute population in agriculture begins to decline, labor outflows peak, financial resource outflows decelerate or drop depending on policies; and
- Fourth phase: a modern agriculture develops, with the ability to exert political pressure to stabilize and subsidize; the agricultural labor force declines to a very small share of the total labor force.

He also emphasizes the importance of marketing in the transformation.

Timmer's classification probably applies best to subnational regions, since development rarely proceeds evenly across an entire country. Thus in Africa one would expect most countries to have many areas in the first stage and some areas that have achieved the second. The Maputo agreement to increase public sector investment in the agricultural sector implies that African ministers of agriculture also believe that most of their constituents are in the first phase, i.e., in great need of investment into the sector.

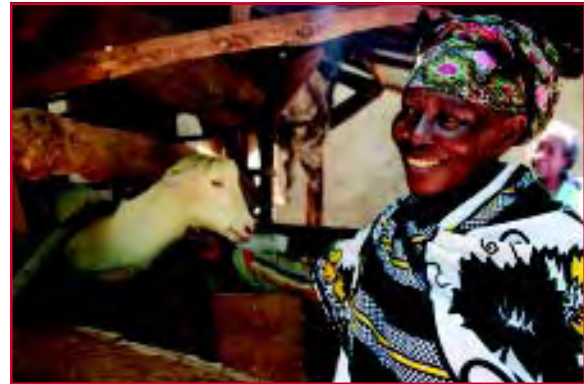
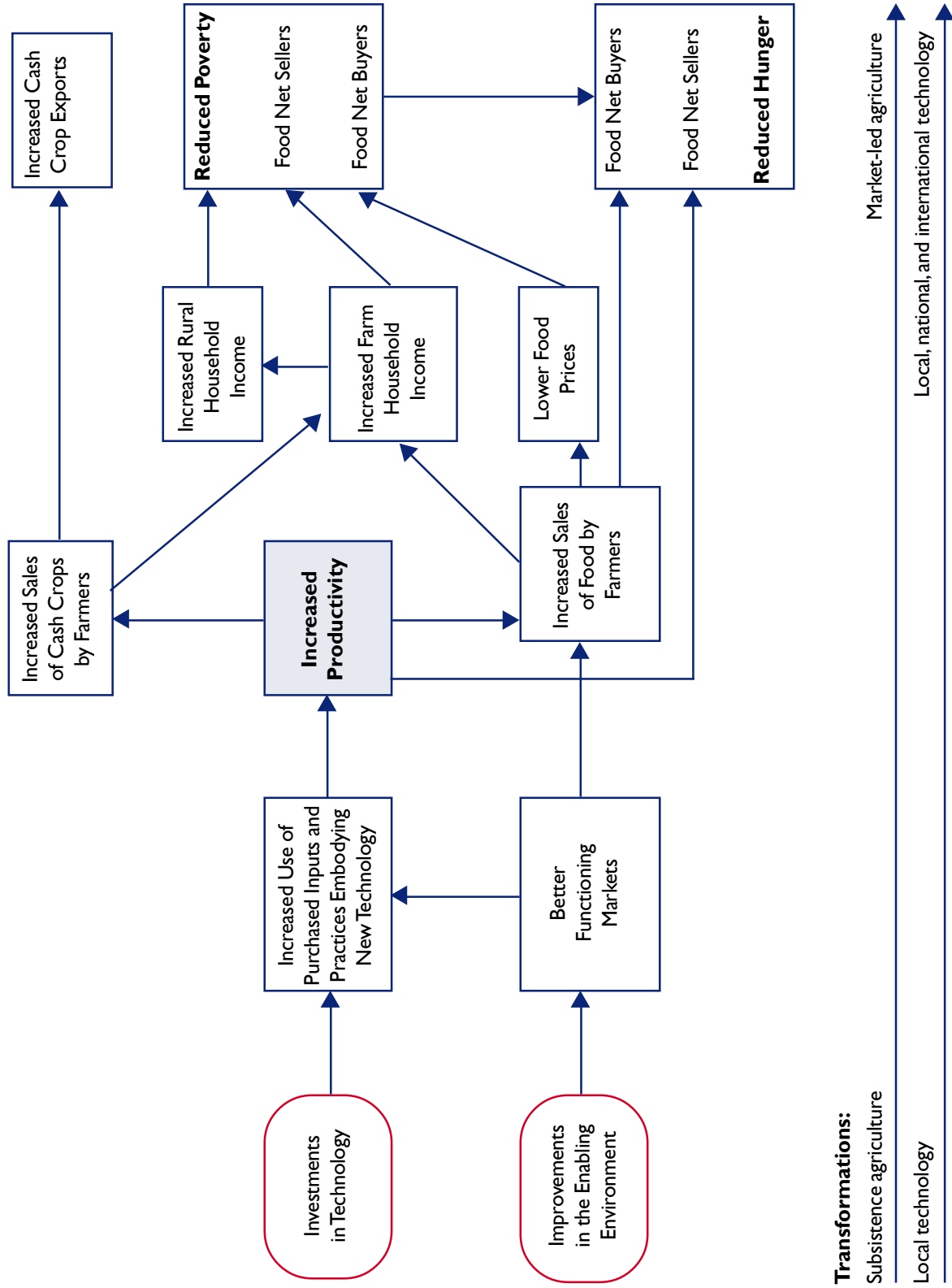


Figure 6 summarizes this discussion and shows the relationships through which the agricultural transformation contributes to the reduction of hunger and poverty, the creation of wealth, and economic growth.

FIGURE 6: HOW THE AGRICULTURAL TRANSFORMATION REDUCES POVERTY AND HUNGER



Transformations:

Subsistence agriculture

Local technology

Market-led agriculture

Local, national, and international technology

NEW FOREIGN ASSISTANCE FRAMEWORK AND THE TRANSFORMATION OF AGRICULTURE

In the USG's new Foreign Assistance Framework, the two key thrusts (Program Elements) in the Agriculture Program Area of the Economic Growth Objective are:

- Improved enabling environment to make markets and other institutions function better, and
- Increased sector productivity.

It is clear from Figure 6 that these program elements are the key underlying improvements that must be made to promote the agricultural transformation. It is the agricultural transformation that leads to increases in rural growth and income, reductions in poverty and hunger, and movement of countries from one level to the next higher level, as described in the Foreign Assistance Framework. The program elements are the key IEHA IRs.



COUNTRY AND REGIONAL PROGRESS ON THE PATH OF TRANSFORMATION

Recent IFPRI analysis sheds considerable light on changes in national and regional agricultural productivity in sub-Saharan Africa. In this research, agricultural productivity is measured as Total Factor Productivity (TFP), the ratio of agricultural value-added to the total value of all inputs used in production. Productivity per unit of land or labor is called Partial Factor Productivity (PFP).

We will draw on this research to answer three questions:

- Is TFP increasing in sub-Saharan Africa and in the IEHA countries?
- Is TFP growth enough to stimulate agricultural transformation?
- Is TFP change per subregion, and in the countries of those subregions, sufficient to induce and sustain regional growth dynamics?

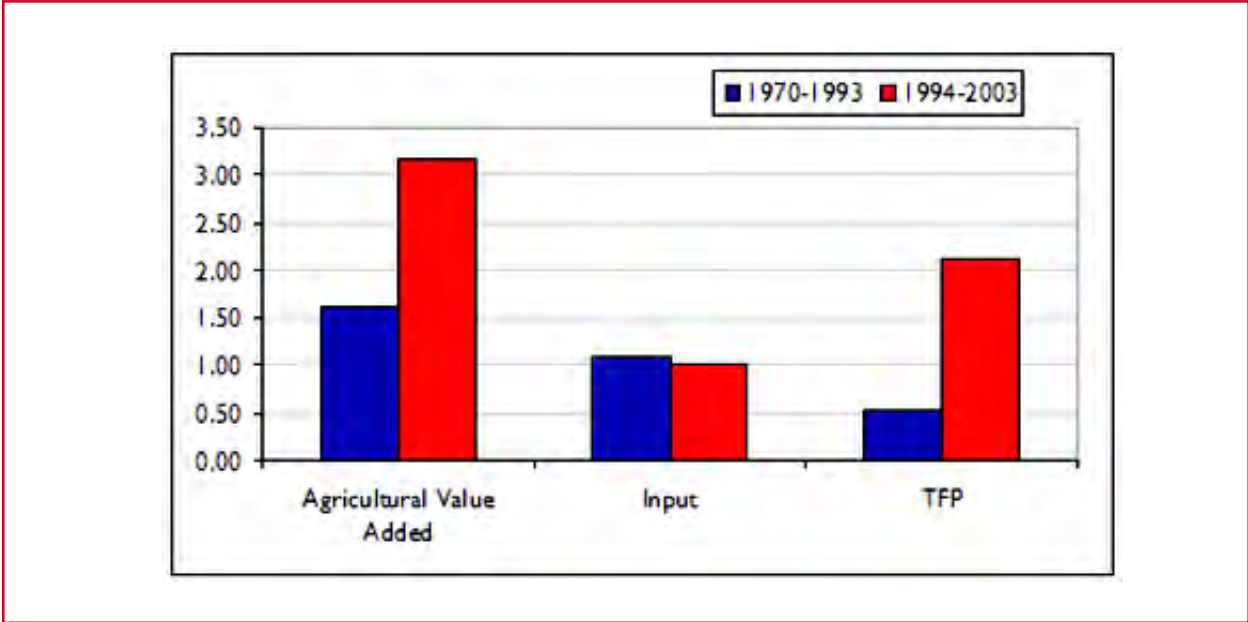
TFP trends in sub-Saharan Africa. Sub-Saharan Africa's annual average growth rate of agricultural TFP for the period 1970-2003 was 1 percent, which resulted in a total of only 41 percent growth in 34 years, with most of this growth occurring in the last ten years (see Figure 7). Indeed, all the countries included in the study show slower growth (even decreasing productivity) occurred during the first part of this period; in almost every case, productivity growth has been sustained only for the past ten years, although there are significant differences in initial productivity levels.

Even with this acceleration of TFP growth, countries in sub-Saharan Africa are still at very low levels of productivity. We can see this by comparing levels of productivity¹⁸ in sub-Saharan Africa and China over the last 30 years. China's lowest level of TFP was in 1980, during the Cultural Revolution; even at that point, however, it was 4.34. Its TFP level in 2003 was 8.13. By contrast, sub-Saharan Africa's TFP level in 1973 was .68, and in 2003 it was still only .93. In 1973, the country with the highest level of TFP (1.64) was Cote d'Ivoire; in 2003, it was Cameroon, with a TFP of 2.29.

¹⁸For technical reasons, TFP is calculated for each country (or region) relative to productivity in Cote d'Ivoire in 1990. Thus a level of 4.34 means 4.34 times the level of Cote d'Ivoire in 1990.

It is also instructive to compare the TFP levels and growth rates in sub-Saharan Africa to those of other regions or countries. Comparing regions, one can examine whether there is a relative abundance of land or labor, which indicates along which path productivity expansion will occur. In the case of Asia, low land/labor ratios determine that productivity expansion occurs by an increase in land productivity. The opposite is the case for Latin America. Sub-Saharan Africa appears to be in the middle, that is, productivity expansion occurs through increases in both land and labor productivity, but sub-Saharan Africa has relatively high land/labor ratios compared to Asia.

FIGURE 7: GROWTH RATES OF AGRICULTURAL VALUE ADDED, INPUTS AND TOTAL FACTOR PRODUCTIVITY (TFP) IN SUB-SAHARAN AFRICA, 1970-2003



TFP trends in sub-Saharan Africa and IEHA countries. In the last ten years for which there are data (1994-2003), Cameroon, Mozambique, Nigeria, and Central African Republic show average TFP growth rates of more than 3 percent (see Table 27). Countries with TFP growth of 2-3 percent are Malawi, Benin, Ghana, Uganda, Madagascar, Rwanda, Cote d'Ivoire, Republic of Congo, Namibia, and Senegal. These same countries also had good performance during 1994-2003 in terms of labor and land PFP growth.

TABLE 27: TOTAL FACTOR PRODUCTIVITY IN AGRICULTURE, 1994-2003, HIGH TFP GROWTH COUNTRIES, IEHA COUNTRIES, SUBREGIONS, AND SUB-SAHARAN AFRICA

Country/Region	Level*	Annual Growth Rate (%)
Cameroon	2.29	4.09**
Nigeria	1.63	3.61**
Cote d'Ivoire	1.51	2.28**
Benin	1.34	2.56**
Gabon	1.13	1.58**
Tanzania	1.09	1.52**
Central African Republic	0.40	3.58**
Ghana	0.65	2.72**
Kenya	0.50	0.87***
Uganda	0.46	2.64**
Mozambique	0.35	4.83**
Mali	0.33	1.02
Zambia	0.24	1.94*** ¹
East & Central Africa	1.70	2.68**
Southern Africa	0.87	4.73**
West Africa	2.32	2.09**
SSA	0.78	1.43

* Calculated as productivity values relative to productivity in Cote d'Ivoire in 1990.

** Significantly different from 0 at the 1% level

*** Significantly different from 0 at the 10% level

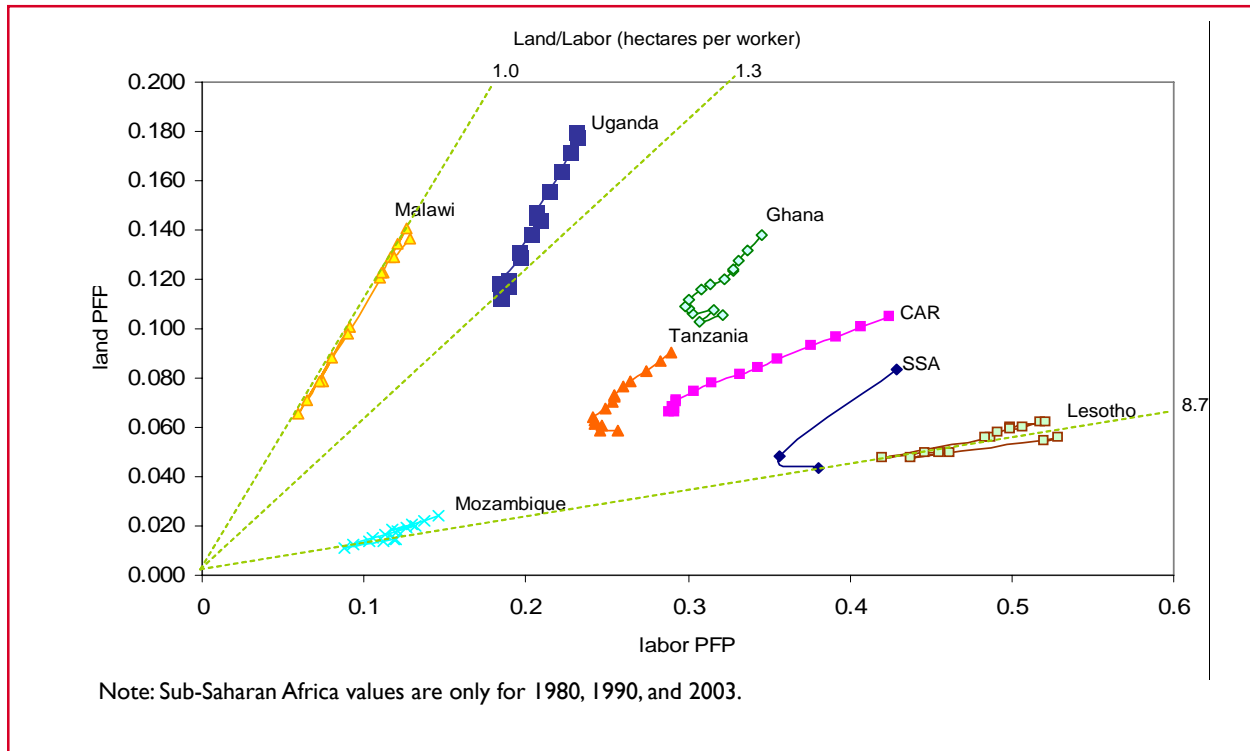
¹ TFP in Zambia in 1994 was much below trend; omitting this data point would result in a lower estimate of growth and perhaps an even higher level at which the results are significantly different from zero.

During this period, the level of TFP is lower in each of the IEHA countries than the sub-Saharan Africa average. On the other hand, the growth rate of TFP in each of the IEHA countries except Kenya and Mali is higher than the sub-Saharan Africa average. It must be noted, however, that when one compares the IEHA countries as a group to sub-Saharan Africa, neither of these differences (in TFP level or growth rate) is statistically significant.

Delving a little deeper into the country situations, we can examine the land and labor PFPs to learn about the paths along which different countries move as TFP increases. The land productivity measure is the ratio of agricultural value added to the total hectares used in agriculture.¹⁹ The labor productivity measure captures agricultural value added relative to the economically active agricultural population. When plotted in a figure, the distance between points reflects productivity growth. The diagonal lines indicate constant factor ratios (land/labor). When a country or region's productivity locus is flatter (steeper) than these diagonal lines, it indicates an increase (decrease) in the number of hectares per worker over time. In Figure 8, we can see that the selected countries are all experiencing TFP growth (i.e., movement to the right and up), but they are doing so along quite different paths. Some (e.g., Lesotho, Mozambique) are increasing TFP more by increasing labor productivity, whereas others (e.g., Malawi, Uganda) are increasing TFP more by increasing output per hectare. Neither path is better than the other. The path that is best is the one along which TFP increases fastest (as shown by the greatest distance between successive points on each path).

¹⁹Land here includes irrigated or non-irrigated cropland, pastureland, and rangeland.

FIGURE 8: LABOR AND LAND PFP AND PRODUCTIVITY GROWTH PATH OF BEST PERFORMING COUNTRIES IN SUB-SAHARAN AFRICA, 1989-2003 (\$1000 PER WORKER AND PER HECTARE)



P growth and transformation. The pattern of TFP growth in several countries in sub-Saharan Africa suggests that these countries are finally moving out of a period of stagnation and low or negative productivity growth (related in many cases to social and political conflicts). While it is not possible to determine that a country has started a process of transformation of its agricultural sector using only information on productivity, these data show that productivity has begun to increase in many countries. However, conflict and other significant barriers to productivity growth have taken a significant toll. For example, despite its successful recovery from conflict, Mozambique's productivity level in 2003 (.35) is still very far from those of Ghana (.65), Swaziland (.81), Tanzania (1.09), or Cameroon (2.29).

The TFP "turning point" seems to have come in the early 1990s, or for some countries during the 1980s. During the period 1974-1983, only five countries out of 35 show statistically significant TFP growth; during 1984-1993, the number is 14; it becomes 17 during 1994-2003.²⁰ Within sub-Saharan Africa, most regions show a similar TFP growth pattern, with a period of stagnation or negative growth between 1970 and 1985, a period of acceleration during 1985-1993, and faster growth in the last ten years. (The only exception to this general trend is the Sahel, which shows faster growth in the 1980s and low growth in the past ten years.) TFP growth for sub-Saharan Africa was estimated as 1.4 percent during 1994-2003.

²⁰ These figures include only the number of countries that had statistically significant and positive growth in TFP. Some countries in each of the first two time periods had statistically significant, negative growth in TFP, i.e., productivity that was trending down.

Another way to examine the relationship between transformation and productivity is through a relevant country example. South Africa makes for a good example, as it is located in Africa but parts of its agricultural economy have been more advanced for some time. South Africa's TFP levels in 1994 were the same as Nigeria's. In 2003, South Africa's levels were similar to those in Cameroon and 35 percent higher than in Nigeria. TFP growth in South Africa has been sustained in the past: 3.7 percent during 1994-2003 and 2.8 percent in 1984-2003. If the TFP "threshold" is in the range of South Africa's TFP levels, then countries like Cameroon, Nigeria, Benin, Ghana, Cote d'Ivoire, Tanzania, and Rwanda, which were at or above South Africa's TFP level in the 1970s and showed sustained growth in recent years, could be experiencing the transformation of their agricultural sectors.²¹

TFP growth and regional dynamics. Groups of countries are linked to each other by trade and by other relationships like shared research. IEHA is promoting these linkages among countries in its three subregions through its investments in subregional institutions and activities. Regional dynamics can be thought of as a kind of iterating, unbalanced growth, in which one country or subnational region experiences productivity growth and begins transformation, and then-through the types of linkages promoted by IEHA-the additional income, trade, and research outputs that are part of this transformation reach another country or subnational region, where they stimulate further such processes, eventually creating additional impacts in the originating area. The question we are examining is whether the TFP growth to date in IEHA's subregions is sufficient to support this dynamic.

IFPRI research shows that growth in the middle-income countries in southern Africa (e.g., South Africa) will provide strong growth opportunities for agriculture in low-income countries through increased demand for their agricultural products. For example, an additional 4.5 percent of GDP growth in South Africa would lead to an additional 0.6-0.9 percent of GDP growth and an additional 0.7-1.3 percent agricultural GDP growth in Malawi, Mozambique, Zambia, and Zimbabwe.

Agricultural productivity growth is essential if these low-income countries are to take advantage of growth in middle-income countries. Growth in the grain and livestock subsectors through regional trade has the largest impact on GDP and poverty reduction in low-income countries. For example, if there were an additional 4.5 percent growth of TFP in grain and livestock in these low-income countries and additional 4.5 percent economic growth in South Africa, GDP in low-income countries would accelerate by more than 1 percent, and agricultural GDP between 2.5 percent and 3.4 percent. As a result, poverty would be reduced by more than 5 percent.



²¹ For the most recent period, 1999-2003, Benin, Cameroon, Central African Republic, Ghana, Nigeria, and Uganda have high or intermediate (more than 1 percent) and statistically significant TFP growth. Burundi, Republic of Congo, Gabon, Sierra Leone, and Tanzania were not part of these two groups during 1994-2003 but are also in this group during 1999-2003.

Another regional dynamic involves spillovers from collaborative efforts like agricultural research. Since African countries are small, they can gain by working together in this area. In East and Central Africa, potential spillover effects across countries from agricultural research are very large. The benefits of research can easily be doubled if the countries of the region work together and share the technologies developed. Among specific commodities, the benefits to the region could increase by as much as 70 percent for milk, 64 percent for beef, 50 percent for cassava, and 26 percent for maize (Omamo et al. 2007). Research in West Africa reveals similar large benefits; this region will also gain by reducing trade barriers and improving regional transport infrastructure (IFPRI 2006).

IEHA PROGRESS ON THE PATH OF TRANSFORMATION

IEHA's investments are creating the dynamics and changes that are needed to spur transformation but that are not easily or readily seen at the national level. A key starting point is adoption of new technology, which improves productivity and eventually leads to the structural change in the agricultural sector that is transformation.

Technology adoption. In FY 2006, IEHA helped more than half a million smallholders bring more than 850,000 hectares under new technologies. Some examples of these new productivity-enhancing materials and techniques are shown in Table 28.

TABLE 28: NEW TECHNOLOGIES ADOPTED IN FY 2006 BY IEHA SMALLHOLDERS

Crop	Technology
Okra	Hybrid seed
Mangoes	Pruning techniques
Vegetables	Raised and contoured beds, fertilizer, drip irrigation, and crop rotation
Peanuts	Drying rack

Source: Annual M&E reports by IEHA operating units.

IEHA also extended new technologies for post-harvest handling and value addition. USAID/Mali helped village associations to use improved rice storage techniques and mango exporters to improve their post-harvest handling, packaging, and marketing. These improvements in techniques lead to lower losses/higher productivity and to higher sales prices and income for both smallholders and small agribusinesses in the value chain.

Increased productivity. IEHA captures improvements in productivity both in its physical dimension (yield) and also in the additional profits (gross margin) generated by additional output and/or higher-quality products. Maize is a key food crop in East Africa. In 2006, Kenya, Mozambique, and Uganda each realized a significant increase in gross margin per hectare for maize, and all except Uganda had significant increases in yield; the overall increase in gross margin was 6 percent. This additional profit (income) permits farmers to make short- and long-term investments in their agricultural enterprises to continue improving productivity, in addition to giving their additional disposable income to spend on goods and services in the surrounding area. Significant ongoing improvements in agricultural productivity are the critical starting point of transformation, and the farmer's consumption expenditures have a multiplier effect nearby, reinforcing the wealth-building trend of transformation in rural areas.

A similar example is cashews, where IEHA programs in Kenya and Ghana led to a significant increase in both gross margin and yield; the overall increase in gross margin was 52 percent. In addition to the income-increasing effects of improvements in productivity, this example demonstrates farmers' willingness to commercialize their operations-i.e., producing and selling cash crops. This linking to markets-and the movement away from subsistence-is another key aspect of transformation.

Better-functioning markets. Small subsistence farmers are more inclined to move to commercial types of production when domestic and regional markets function smoothly and offer them reliable and fair opportunities to sell their output. The same incentives induce seed producers, local traders, processors, and exporters to go into or stay in business. In FY 2006, IEHA-supported programs achieved significant results in making markets work better. Some examples are shown in Table 29.

TABLE 29 SELECTED MARKET-ENHANCING POLICY IMPROVEMENTS, IEHA COUNTRIES AND SUBREGIONS, FY 2006

Policy	Country/Region	Baseline Year	Status - Start of FY 2006	Status – End of FY 2006
Reform of agricultural export rules	Mali	2005	Proposal	Approval
Partnership for port cargo handling	Ghana	2005	New	Implementation
Zero VAT on handling services at Entebbe Airport for export of fresh produce	Uganda	2004	Proposal	Approval
Agricultural Market Development Plan	Zambia	2005	Analysis	Approval
Common set of seed certification standards	Southern Africa	2005	New	Approval
Common regulations for conventional and transgenic seeds in CILSS countries	West Africa	2005	Analysis	Approval

Source: Annual M&E reports by IEHA operating units.

Note: IEHA tracks policy improvements using a 6-point scale: New, Analysis, Dialogue, Proposal, Approval, and Implementation.

Increased amounts of food sold in local markets. IEHA-assisted smallholders are using improved technology to produce more food, which they are selling in local markets. These sales help to keep food supply and demand matched, and food prices stable or declining-one key indicator of a successful transformation. Table 30 shows sales by IEHA beneficiaries of maize and rice, two important African staple foods; from 2005 to 2006, these sales tripled.

TABLE 30: VALUE OF PURCHASES FROM SMALLHOLDERS (MILLIONS OF US DOLLARS)

Crop	FY 2006					FY 2005
	Kenya	Mali	Mozambique	Uganda	Total	
Maize	67.1		0.1	0.9	98.3	30.3
Rice		0.6		11.5	20.5	8.5
Total					118.8	38.8

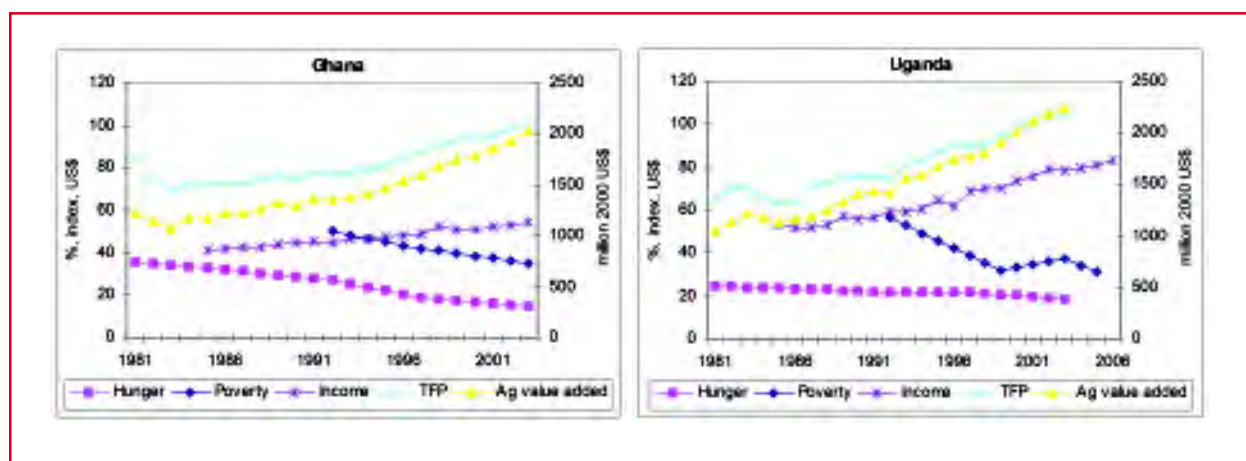
Source: Annual M&E reports by IEHA operating units.

AGRICULTURAL TRANSFORMATION REDUCES POVERTY AND HUNGER: THE RESULTS

At different points in this report, we have separately examined trends in productivity, household income, poverty, and hunger. When we view these together in the context of agricultural transformation, we see clearly the linkages among the household-level indicators (income, poverty, and hunger) and the macro-level indicators (agricultural productivity and economic growth). Here we discuss these further for each country.

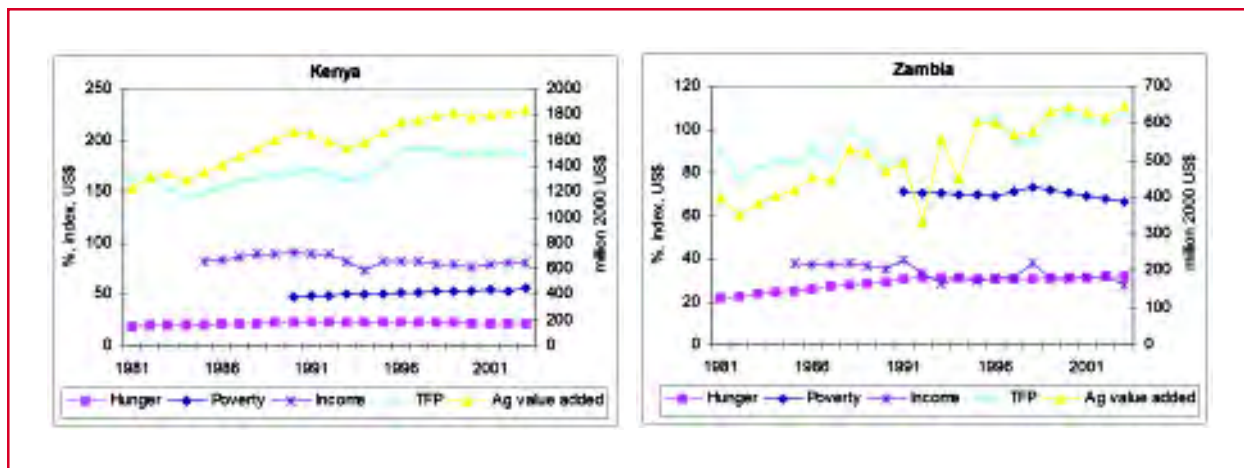
Ghana and Uganda. There is a consistent pattern here of increasing agricultural TFP, agricultural growth, and economic growth, increasing real household incomes, and declining poverty and hunger (see Figure 9). This suggests that government policies and investment strategies, backed by development partners, are indeed having the desired impacts, and the benefits of those investments and growth are translating into increased household incomes, leading to substantial reductions in poverty and hunger. While the rate of poverty reduction has been a bit slower in the case of Ghana, the incidence of hunger declined rapidly by about 5.3 percent annually since 1992. Thus, Ghana and Uganda are on target to meet the MDG of halving poverty and hunger by 2015.

FIGURE 9: HUNGER, POVERTY, INCOME, TFP, AND AGRICULTURAL VALUE-ADDED IN GHANA AND UGANDA, 1981-2003.



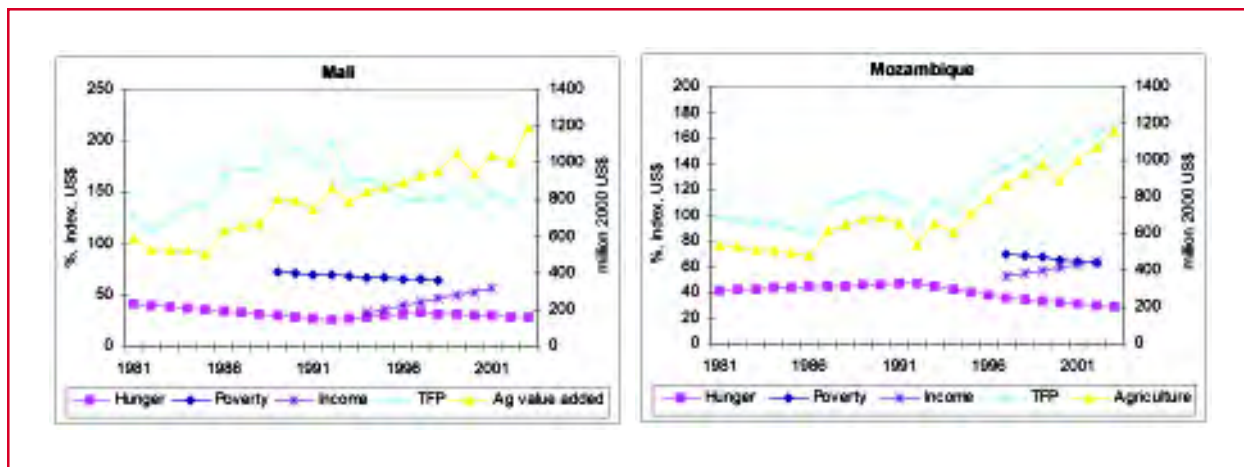
Kenya and Zambia. There is a consistent pattern here, too, although the situation is bleaker (see Figure 10). With weak or no growth in agricultural TFP, agricultural and economic growth have been relatively low, and very erratic in the case of Zambia. Real household incomes have stagnated or declined; poverty has increased in Kenya and declined only slightly in Zambia, while hunger has remained unchanged in Kenya, but increased slightly in Zambia. Thus, Kenya and Zambia will require much higher growth rates in order to meet the MDG target. Policies and investment strategies, as well as the delivery of public goods and services, need to be examined and adjusted accordingly.

FIGURE 10: HUNGER, POVERTY, INCOME, TFP, AND AGRICULTURAL VALUE-ADDED IN KENYA AND ZAMBIA, 1981-2003.



Mali. Recent experience in Mali is positive, too. Since the early 1990s, total agricultural production has grown steadily and at high rates. Household income has also increased modestly, but with poverty and hunger decreasing much slower than in other countries (Figure 11). Mali may be on target to meet the MDG if it can maintain its current high agricultural growth rates.

FIGURE 11: HUNGER, POVERTY, INCOME, TFP, AND AGRICULTURAL VALUE-ADDED IN MALI AND MOZAMBIQUE, 1981-2003.



Mozambique. While Mozambique has been experiencing high agricultural and economic growth rates, there was inadequate data to assess long-term trends in income and poverty (see Figure 11). The limited data on income and poverty that do exist suggest improving trends. Hunger, on the other hand, has declined at one of the fastest rates compared to other IEHA countries, at an average of 4.4 percent annually between 1992 and 2003. Although the lack of data on poverty and incomes limits an analysis of outlook regarding the MDG target, the evidence in Ghana and Uganda of the strong linkages between growth and household outcome suggests that Mozambique is also on target to meet the MDG of halving poverty and hunger.

6. BUILDING REGIONAL PLATFORMS TO SUPPORT THE COMPREHENSIVE AFRICAN AGRICULTURAL DEVELOPMENT PROGRAM

IEHA is collaborating with and strengthening key African organizations at the continental, regional, and country level to lead and manage implementation. Supporting the CAADP is a key priority for IEHA. At the regional level, IEHA works with Regional Economic Communities (RECs) that are designated by the African Union (AU)/NEPAD to lead the CAADP process and other key regional organizations that implement regional programs critical to achieving CAADP's goal of 6 percent per year sustained growth in agriculture.

The regional organizations that IEHA is working with enhance productivity, improve the policy environment, and increase trade.

THE ROLE OF REGIONAL PLATFORMS

The small size, economic isolation, and rudimentary infrastructure of many African economies present development challenges not easily surmounted at the national level. With a regional approach, countries can capture economies of scale and scope unavailable to them individually due to their limited access to markets, finance, human capital, and knowledge. They can address cross-border problems caused by epidemics, pollution, and conflict. By working regionally, countries are also held accountable to a larger group of stakeholders for their policy commitments.

Investments in regionally based agricultural research can and do lead to significant gains when they are complemented by programs to transfer and adapt innovations developed in focus countries. Based on IFPRI research, potential gross regional benefits (direct plus spillover) from investments in plantains, maize, cassava, dairy, beef, and veal are especially high. For certain of these crops, a great proportion of the total gain comes from spillovers between countries.

Commodity flows among African countries are hampered by many types of barriers, including trade tariffs; seasonal export restrictions; poorly harmonized measures, grades, and standards; the lack of structures to facilitate structured regional agricultural trade; and corruption at customs posts. Making improvements in policy like removing Africa's own trade barriers would have a significant impact on agricultural trade. Similarly, improvements in the transport sector have spillover effects that can stimulate bilateral trade between neighboring countries. For instance, Mozambique's high transport costs also affect landlocked Malawi.



In response to the opportunities and challenges presented by the global economy, Africans are building a broad array of regional institutions, and IEHA is supporting them. These new or strengthened organizations aim to facilitate the safe flow of people, goods, capital, and knowledge across borders. They include free trade zones; common monetary unions; harmonized customs, grades, and standards; science and technology networks; and regional trade associations, farmer organizations, and partnerships for regional security and governance.

African leaders have committed to using these regional bodies as building blocks for integration, supported by the AU and NEPAD. There is now an imperative to strengthen the mandates, strategic planning, management and implementation structures, performance-based monitoring systems, and funding base for these organizations so they can deliver the regional synergies needed to assure the continent's economic future. IEHA plans to be a key part of this effort.

STRENGTHENING REGIONAL PLATFORMS

There are two types of regional organizations with which IEHA is collaborating—the aforementioned RECs, and regional agricultural networks. IEHA is working with the RECs both to strengthen their ability to implement CAADP and to implement regional programs that are creating new efficiencies and new opportunities for agricultural growth. The agricultural research institutions that IEHA supports are producing new technologies for their member countries more efficiently than they could individually and these technologies are key to achieving the 6-percent agricultural growth rate targeted by CAADP. IEHA also supports regional trade associations and public sector institutions that are improving the enabling environment for agricultural growth and food security.

IEHA Partnering with Regional Platforms

ASARECA
COMESA
CORAF/WECARD
ECOWAS
FARA
SADC

Seeking out and collaborating with these partners increases IEHA's reach and impact. IEHA's direct partners often take the form of a network, with many other partners that can be reached via the direct partner. For this reason, in its regional programs one indicator of IEHA's reach is the number of partner organizations and active institutional members of those partner organizations. In FY 2006, IEHA was linked to and assisting more than 1,500 such organizations (see Table 31).²²

TABLE 31: NUMBER OF PARTNER ORGANIZATIONS

Regional Output Indicator	Target for FY 2006	Total for FY 2006	Percentage of Target Achieved
Number of partner organizations and active institutional members of those partner organizations.	1,049	1,575	141%

Source: Annual M&E reports by IEHA operating units.

* Percent of Target Achieved is calculated using target and actual data from each IEHA operating unit. If an operating unit did not submit a target, then that unit's "actual" was excluded from the calculation.

Regional Economic Communities

Through IEHA, USAID is committed to support AU/NEPAD's CAADP implementation through RECs that will build the regional dynamics for achieving agricultural growth and increase the availability of and access to

²² A complete list of IEHA's partners is given in Annex I.

food within regions. The collaboration with RECs to oversee, manage, and lead the CAADP implementation process has started with COMESA and ECOWAS.

COMESA. The Common Market for Eastern and Southern Africa is a regional integration institution established in 1994 to consolidate economic cooperation among its member states through the implementation of common policies and programs (including the facilitation of agricultural development and agricultural trade) aimed at achieving growth and development. The 21 member countries are: Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

COMESA is supported by IEHA, its member states, and a group of donors to coordinate the implementation of CAADP. COMESA is also supported by IEHA to facilitate improved efficiency of regional value chains for selected commodities through the Regional Agricultural Trade Expansion Support (RATES) project. COMESA is now working with countries, development partners, private sector stakeholders, and farmer organizations to put in place regional and national CAADP compacts by the end of FY 2007, strengthening and aligning ongoing investment plans.

ECOWAS. The Economic Community of West African States is a regional group of 15 countries (Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo), founded in 1975. Its mission is to promote economic integration in all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial questions, and social and cultural matters.

USAID is working with the ECOWAS Commission for Agriculture to facilitate the implementation of the CAADP process at the regional and country levels in West Africa. The national CAADP processes have now been launched in Niger, Mali, Benin, Senegal, Ghana, and Nigeria.

USAID's collaboration with COMESA, ECOWAS, and other donors (including the U.K. Department for International Development, Swedish International Development and Cooperation Agency, Norwegian Agency for Development Cooperation, and World Bank) in 2006 laid the foundation and set the strategic direction for implementing CAADP.

Regional Agricultural Networks

IEHA provides support to regional networks that guide and make more efficient both agricultural research and policy harmonization.

ASARECA. The mission of the Association for Strengthening Agricultural Research in Eastern and Central Africa is to promote economic growth, fight poverty, reduce hunger, and enhance resources through regional collective action in agricultural research for development. Its STRATEGIC OBJECTIVE IS Enhanced sustainable productivity, value-added, and competitiveness of the regional agricultural system. Established in 1993, ASARECA is a non-political organization of the NARIs of ten countries: Burundi, DR Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, and Uganda.

ASARECA carries out its work largely through networks it has established around individual commodities or issues. USAID provides direct support to five of those networks: the biotechnology (ECABIO) and policy



(ECAPAPA) programs and the commodity networks for beans (Eastern and Central Africa Bean Research Network (ECABREN), implemented with CIAT), cassava (Eastern Africa Root Crops Research Network (EARRNET), implemented with IITA), and potato and sweet potato (Regional Potato and Sweet Potato Improvement Network in Eastern and Central Africa, or PRAPACE, implemented with the International Potato Center). With USAID support, ASARECA has expanded from a small coordinating unit to its current



role managing 17 networks and programs, collaborating with the NARIs of the ten member countries, international agricultural research centers (IARCs), universities, and other partners, and with a total annual budget of more than \$14 million and more than 90 diverse research projects.

To track progress on organizational development in ASARECA, USAID/East Africa (developed and) uses the PIVA,²³ and applied it in 2002 (baseline) and 2004. It will be applied again in 2007 and will be used to guide the implementation of the new operating plan.

The recent evaluation of IEHA noted USAID/East Africa's strong support to ASARECA to enhance agricultural research capacity and improve its efficiency through regional approaches and priority setting. Solid progress was made this year in pooling expertise from several countries to make 11 new technologies available in multiple countries. In addition, regional market information systems have proven successful in increasing the efficiency of commodity flows.

CORAF/WECARD. The mission of the West and Central African Council for Agricultural Research and Development (CORAF/WECARD²⁴) is to improve the efficiency and effectiveness of agricultural research in West and Central Africa by contributing to the construction and the consolidation of the capacities of the National Agricultural Research Systems (NARSs), through cooperation between its members, development partners, regional and international organizations, private sector, non-governmental organizations, and users of research results.

CORAF/WECARD was created in 1987. Today it groups the NARIs of 21 countries of West and Central Africa (Benin, Burkina Faso, Cameroon, Cape Verde, Central African Republic, Chad, Congo, Cote d'Ivoire, DR Congo, Gabon, Gambia, Ghana, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, and Togo).

USAID is supporting CORAF/WECARD's role in facilitating the effective coordination of the agricultural research and development agenda for West and Central Africa. CORAF/WECARD has also received funding from the African Development Bank, the Technical Center for Agriculture and Rural Cooperation, the U.K. Department for International Development, and the International Development Research Centre.

The institutional capacity of CORAF/WECARD was evaluated using the PIVA tool; its score improved by 10 percent in 2006.

²³Multiple competency areas are assessed and assigned scores (e.g., 1 through 4), and the scores are totaled. Competency levels are start-up/nascent (1), developing/emerging (2), consolidating (3), and mature/viable (4). The meaning of each score for each competency is clearly defined. Competency areas include governance, operations, human resources, financial, program and service delivery, and external relations and advocacy.

²⁴CORAF is the French acronym for Conseil Ouest et Centre Africain pour la recherche et le développement agricoles. The organization currently goes by its English name but uses CORAF/WECARD as its acronym.

FARA. The Forum for Agricultural Research in Africa (FARA) was formed in 1997. FARA is an umbrella organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa. FARA complements the innovative activities of national, international, and subregional research institutions to deliver more responsive and effective services to its stakeholders. It plays advocacy and coordination roles for agricultural research for development, while the NARIs, advanced research institutions, and IARCs develop improved technologies along the research-to-development continuum in their respective countries and coverage areas.

In 2006, in consultation with stakeholders, FARA developed the Framework for African Agricultural Productivity (FAAP) to guide CAADP Pillar IV efforts, endorsed and adopted by the All Heads of State Summit in July 2006.

Numerous international and regional organizations are making substantial contributions to African agricultural development through research and capacity building. FAAP will provide the additional benefit of greater consistency with African priorities and modes of operation. FAAP is encouraging and guiding reform of research and technology efforts in Africa to improve effectiveness and alignment with CAADP objectives.

USAID/Southern Africa works to improve the capacity of its major regional partner, the Food, Agriculture, and Natural Resource Policy Analysis Network (FANRPAN). FANRPAN recently developed a strategic plan with input from all 12 of its nodes and other stakeholders. The new mission is proposed as "promoting, influencing and facilitating natural resources, agricultural and food policy research, analysis and dialogue at national, regional and global levels." Recent results include:

- Strengthening FANRPAN's links with, and contributions to, policy discussions in SADC, COMESA, and NEPAD;
- Launch of a new-look FANRPAN website (www.fanrpan.org); there has been an average of 900 hits per month;
- Revitalization of FANRPAN governance and financial management systems; and
- Resource mobilization: Funding for four projects (\$1 million) has been secured and arrangements to commence implementation are underway.

The institutional capacity of FANRPAN was evaluated using the PIVA assessment tool. As a result of IEHA support, FANRPAN's score improved by 77 percent in 2006.

With support from USAID/West Africa, CILSS continued to strengthen its early warning food security system, developed national environmental action plans, and collaborated with ECOWAS on the implementation of the West Africa Agriculture Policy (ECOWAP). In addition, an online data portal was developed that now contains all of the Institute du Sahel's (INSAH's) 703 publications and databases related to agricultural development, environmental and resource management, and demographic and health issues. The databases were reorganized to be more easily searchable. The project has also built human and institutional capacity within CILSS and INSAH to maintain and expand the website.



Knowledge Systems for African Agriculture

Another major USAID effort to build regional platforms is its support for the SAKSS and regional SAKSS (ReSAKSS) initiatives that assist country, regional, and continental efforts to improve productivity and make markets more efficient through more effective knowledge creation and sharing. Specifically their objectives include: Strategic Analysis, namely, examining policy and investment options, conducting spatial analysis, and establishing M&E; Knowledge Management, including facilitating the country nodes, promoting policy dialogue, facilitating data access, strengthening networks, and disseminating key information; and Capacity Building in policy analysis and modeling and in geographic information systems.

SAKSS is a global program set up by IFPRI to inform the design and implementation of agriculture and rural development strategies; the initial focus has been on sub-Saharan Africa. ReSAKSS programs were launched to provide RECs and their member states with access to policy-relevant analyses in order to improve policymaking, track progress, document success, and derive lessons that can feed into the review and learning processes associated with the implementation of the CAADP agenda. In 2006, IFPRI completed a concept paper outlining methods for drawing linkages between investments, productivity, incomes, and poverty; the paper is helping to guide the CAADP Round Table process. The recently completed West Africa study showed that if countries can maximize their agricultural potential, eight of 20 West African countries can achieve the 6-percent agricultural growth called for by CAADP, and another eight will attain more than 5-percent growth in the next ten years. An analysis of southern Africa revealed the extent of regional trade impacts that are feasible. For a summary of these results, please see section 5, under "TFP growth and regional dynamics."



In IEHA's collaboration with agricultural networks, we see a large contribution to building African capacity to lead the development efforts needed to implement CAADP. A key outcome is the identification of priorities and of the contribution of regional actions, which was supported directly by SAKSS analyses.

REGIONAL PROGRAMS RAISE PRODUCTIVITY AND ECONOMIC INTEGRATION

In addition to working directly with regional institutions to build platforms for CAADP, IEHA supports regional programs that also bring about improvements in productivity, policy, and trade.

Increasing Smallholder Productivity

IEHA's regional programs effectively promote increases in agricultural productivity by developing and sharing new technologies across countries and by building linkages among country and regional institutions. Some examples follow.

The Gender Informed Nutrition and Agriculture Alliance (GINA) Program builds on the relationship between agricultural productivity and nutrition. The program's interventions have resulted in: development and implementation of community-based nutrition and agriculture projects to improve the nutritional status of infants and young children; increased availability of nutrient-rich crops for consumption; development and distribution of educational materials on complementary feeding, micronutrient-rich foods, hygiene and sanitation, and intra-household food distribution; and increased positive behaviors such as growth monitoring and promotion. Lessons learned are shared between countries through annual workshops and through dissemination of best practices by GINA M&E specialists. Common features of GINA implementation, derived from lessons learned and applied across countries, include:



- Common packet of agriculture-nutrition interventions;
- Common implementation framework integrating agriculture and nutrition activities; and
- Common M&E systems to capture project data, specifically weight-for-age of children less than five years old.

In Uganda, value addition technologies developed for orange-fleshed sweet potatoes (OFSP) continue to be a pull factor in attracting rural and vulnerable households to GINA interventions. In 2006, households received training in OFSP multiplication and processing, resulting in the production of vitamin A-rich foods¹ being used to improve and diversify children's diets and a potential income generation avenue for rural poor women.

USAID's Farmer-to-Farmer Program (FTF), managed from headquarters in Washington, provides technical assistance from volunteer American agricultural specialists in 12 African countries, including all the IEHA focus countries. Assignments in Africa focus on increasing productivity, operational efficiencies, management capabilities, and marketing capacities of small- and medium-size enterprises working along the dairy, horticulture, maize, and grain value chains. In the IEHA countries, FTF directly trained more than 18,000 people in FY 2006, 55 percent of whom were women. Volunteers contributed nearly \$1 million worth of their professional time.

EGAT provided more than \$12 million in core funding to 16 IARCs. An additional \$5.8 million was provided in core funding to nine Collaborative Research Support Programs (CRSPs) to mobilize the capacities of U.S. universities for research and capacity building in sub-Saharan Africa. For example, the Global Livestock CRSP conducted research on pastoral risks; markets and trade; livestock early warning systems; market information systems; the interface between livestock and wildlife; and the importance of animal protein in human cognitive learning. In FY 2006, the program developed and piloted an Avian Flu School Assessment and an international "train-the-trainer" course to address the global avian influenza emergency.

The Board for International Food and Agricultural Development Long Term Training Activity has resulted in 18 students' completing their course work at U.S. universities and returning to their home countries (Mali, Kenya, Uganda, and Tanzania) to conduct their field research. The Malian students are working as a team to

staff and direct a new agribusiness incubator to commercialize agricultural technologies. In addition, two partner universities in Mali received a private sector-generated donation of new computer software valued at \$240,000. Training teams are mobilized to provide training for the faculty at both institutions.

Improving the Policy Environment

IEHA's regional programs are well positioned to efficiently improve the enabling environment for producers and marketers in numerous countries and to build the capacity of regional and related organizations to analyze and make these improvements.

Regional programs supported by IEHA have achieved significant policy-related results in seed systems, harmonizing standards for maize and dairy trade in East Africa and in biotechnology. Please see the subsection "Agricultural Market Standards and Regulations" in section 3 for these results.

Other USAID programs have also contributed to improvements in the policy environment. Through the Regional Network on HIV/AIDS, Rural Livelihoods and Agriculture (RENEWAL) Program, EGAT/AG addresses the HIV/AIDS pandemic. The program focuses on understanding how rural livelihoods, particularly those deriving from agriculture, contribute to the further spread of HIV/AIDS, how food- and nutrition-related policies and programs can contribute to prevention and mitigation of HIV/AIDS, and how regional networks can respond efficiently to the pandemic.

EGAT/AG collaborates with the International Fertilizer Development Center (IFDC) to increase smallholder farmers' access to agricultural productivity-enhancing inputs and policymakers' experimenting with market friendly approaches to improve producer access to inputs. In 2006, IFDC was one of the principal organizers of the Fertilizer Summit for African Leaders in Abuja, Nigeria, an event that resulted in African leaders' pledging to increase the use of fertilizer as part of the fight against poverty and hunger.



Increasing Agricultural Trade

IEHA supports several regional activities that seek to increase agricultural trade by removing barriers and bringing buying and selling entities together.

In West Africa, the Network of Regional Market Information Systems and Traders' Organizations of West Africa (MISTOWA) aims to increase regional agricultural trade and food security by improving and linking the existing regional efforts to generate, disseminate, and make commercial use of market information. In 2006, MISTOWA trained 120 leaders of producer and trader organizations (including 35 women) to advocate for improvements in the West African trade environment. The follow-up regional advocacy strategy workshop held in Abuja, Nigeria culminated in an invitation by ECOWAS to the producer and trader organizations to engage in further discussions on how best to address the issues

delineated in the action plan at the council of ECOWAS ministers meeting. In addition, information, communications and telecommunications (ICT) training was organized for 220 producer and trader

organization members. They received both general ICT training and more targeted market information management training to prepare them to manage the 150 agribusiness information points in West Africa.

In East and Southern Africa, the RATES program brings together public and private partners to facilitate intra-regional and global trade by focusing on integrated value chains for four commodities: specialty coffee, maize and other grains, cotton, and dairy. The approach for each commodity is to catalyze the development of a regional trade association of the major private sector partners and country-level associations. RATES helps them to develop efficient platforms for sharing information and trade. It links them with COMESA through its staff based at the Secretariat in Zambia, as well as with the COMESA policy bodies. In FY 2006, nearly 850 private firms, 260 farmer, trade and business associations, and 17 women's associations benefited directly from RATES interventions, and 28 formal public-private associations were formed.

The recent evaluation of IEHA found that its programs have worked to increase trade flows by harmonizing standards, streamlining burdensome trade and customs requirements, and decreasing opportunities for rent seeking.

Developing the Private Sector

IEHA partners with the private sector to build capacity and leverage additional resources toward common objectives. In FY 2006, IEHA formed more than 850 public-private partnerships to increase productivity, improve policies, and enhance trade (see Table 32). Some successes are the following:

TABLE 32: PUBLIC-PRIVATE PARTNERSHIPS FORMED

Output Indicator	Target for FY 2006	Total for FY 2006	Percentage of Target Achieved
Number of public-private partnerships formed	407	901	214%

Source: Annual M&E reports by IEHA operating units.

East Africa. The East African Fine Coffees Association (EAFCA) has been very successful linking buyers from high-profile companies including Starbucks and Green Mountain from the United States and Europe with producers and exporters of high-value coffees, and is nearly ready to be a sustainable, independent organization.

Maize is the basic staple food and the principal pillar of food security in the region, and there is a long history of price and supply management and controls on trade by government and parastatal agencies. Both COMESA and the East Africa Community (EAC) have in principle removed all tariffs on grains and have supported the principle of "maize without borders," but complex political issues continue to affect grain trading, including unpredictable restrictions on imports and exports, as well as various kinds of non-tariff barriers. The newly formed East African Grains Council (EAGC) is implementing a strategy for better coordination between the private sector and public agencies to facilitate transparent, structured trade. The EAGC is promoting innovative warehouse receipt and other collateral management systems to stabilize supplies in privately managed stocks. It is engaged in active dialogue with the WFP and other agencies with the objective of bringing the procurement and flows of food aid commodities into the private sector-based regional trading system.

The African Cotton and Textile Industry Federation (ACTIF) is focused on improving integration among partners in the regional textile industry, the main buyer of cotton lint produced by the area's farmers, and on improving their links to the U.S. market through AGOA. The Eastern and Southern Africa Dairy Association

(ESADA) has made very rapid progress in overcoming bottlenecks to regional trade in dairy, a relatively small industry which nevertheless has a major impact on the incomes of participating smallholders.

The increasing availability of reliable internet connections in the region has facilitated the development of useful new tools. The Regional Agricultural Trade Intelligence Network (RATIN) (www.ratin.net) is a leading source of information on market prices and various factors that influence them: weather, government restrictions, etc. The site received more than 12,000 distinct visitors who made over 218,000 hits in FY 2006. There are now 1,400 subscribers to a weekly price bulletin and a monthly newsletter that are also available through the site. The trade linkage sites help bring buyers and sellers together and catalyze more open, orderly, and structured trading systems. Over the year, (www.tradeafrica.biz) catalyzed more than \$230 million worth of grain trade, and had nearly 11,000 distinct visitors. A total of \$435 million in offers to buy and sell cotton were posted on www.cottonafrica.com, which received more than 30,000 distinct visitors. A trading platform is being developed by ESADA, which will be posted on www.dairyafrika.com.

West Africa. In FY 2006, through strategic partnerships, USAID/West Africa assisted 133 partner organizations, 249 agriculture-related firms, 22 womens' organizations, and 461 producers' and related organizations; it trained 3,066 males and 903 females to improve capacity and effectiveness in areas including ICT use; trade and related economic activities; seed production; impact assessment; biotechnology; HIV/AIDS prevention; and management of pests, diseases, and the natural resource base. Thirty-seven public-private partnerships were formed, and about \$11.9 million in additional resources leveraged from other donors. These partnerships range from seed production organizations and research coordination initiatives to an innovative alliance with Kraft Foods to promote the production of certified cocoa in Côte d'Ivoire under a sustainable production and environmentally friendly system.

Southern Africa. The Appropriate Germplasm Project (AGP) advises USAID/Angola and Chevron on how to set up small-scale farmers to supply supermarket-grade vegetables. It has: partnered with Arulussa Seed Co South Africa to supply the Beaufort Hydroponic Project (disadvantaged community) with 8,000 plants; distributed 10,000 rosemary plants to Pic Grow Farmers Association (emerging Black farmers) in Johannesburg; and, in partnership with Bruno Enterprises, propagated more than 350,000 jetropha seedlings, and an additional 1 million seedlings were under propagation for delivery in December 2006. AGP signed an agreement with the Pick-N- Pay Foundation to identify seeds and introduce new cultivation practices to a physically challenged community in South Africa to produce vegetables to be purchased by the supermarket chain.



Agribusiness for Sustainable Natural African Plant Products's (ASNAPP) science-based enterprise development approach continues to build alternative crop market development in Southern African and African inter-regional trade. An income-generating model for developmentally challenged communities introduced to specialty vegetable production in Zambia sold more than \$10,000 in vegetables to Sun International Hotel in a public-private sector partnership approach. The model has been replicated in South Africa partnering with Pick-n-Pay Supermarket. A similar model is under development in Malawi.

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ANNEX I: IEHA'S PARTNERS

Governmental Partners

Agricultural Research Council of South Africa
Biotechnology and Nuclear Agricultural Research Institute - Ghana (BNARI)
Central Bank of Kenya
Central Statistical Office - Zambia
Chamber of Small and Medium Business Associations - Zambia (ZCSMBA)
Coffee Board of Zambia
Commercial and Investment Bank - Mozambique (BCI)
Confederation of Business Associations - Mozambique (CTA)
Conservation Farming Unit - Zambia
Cotton Development Authority - Uganda
Cotton Development Organization - Uganda
Eduardo Mondlane University - Mozambique
Ghana Atomic Energy Commission (GAEC)
Ghana Department of Fisheries
Ghana Standards Board (GSB)
Government of Kenya
Government of the Republic of Zambia
Horticultural Crops Development Authority - Kenya (HCDA)
Institut de l'Environnement et Recherches Agricoles - Burkina Faso (INERA)
Institut National de Recherche Agronomique du Niger (INRAN)
Institute for Security Studies - South Africa
Institute for Statistical, Social and Economic Research - Ghana (ISSER)
Instituto Superior Politécnico de Manica - Mozambique (ISPM)
Jomo Kenyatta University - Kenya
Kenya Agricultural Research Institute (KARI)
Kenya Dairy Board (KDB)
Kenya Institute for Public Policy Research and Analysis (KIPPRA)
Kenya Plant Health Inspectorate Service (KEPHIS)
Kenyan Department of Fisheries
Kumasi Law Faculty, Council Scientific & Industrial Research - Ghana (KNUST)
Kwame Nkrumah University of Science and Technology - Ghana
Makerere University - Uganda
Ministry of Agriculture - Kenya
Ministry of Agriculture - Mali
Ministry of Agriculture - Mozambique (MINAG)
Ministry of Cooperatives - Kenya
Ministry of Education - Mali
Ministry of Education and Sports - Ghana
Ministry of Finance - Kenya
Ministry of Finance and Economic Planning - Ghana
Ministry of Food and Agriculture - Ghana
Ministry of Health - Mozambique (MISAU)
Ministry of Industry and Commerce - Mali
Ministry of Industry and Trade - Mozambique (MIC)
Ministry of Investment Promotion - Mali
Ministry of Labor - Kenya

Ministry of Land and Forestry - Ghana
Ministry of Livestock and Fisheries - Mali
Ministry of Livestock and Fisheries Development - Kenya
Ministry of Small and Medium Enterprises - Mali
Ministry of the Environment - Mali
Ministry of Trade, Industry, Private Sector Development and PSIs - Ghana
Ministry of Transportation National Traffic Institute - Mozambique (INAV)
Ministry of Water, Lands and Environment - Uganda
Moi University - Kenya
National Agricultural Research Organization - Uganda
National Biotech Development Agency - Nigeria
National Council for Science and Technology - Kenya
National Council for Science and Technology - Kenya (NCST)
National Council for Science and Technology - Uganda (NCST)
National Rural Development Agency - Cote d'Ivoire (ANADER)
Nationale du Commerce et de la Concurrence - Mali (DNCC)
Office du Haute Vallée du Niger - Mali (OHVN)
Provincial Directorate of Agriculture - Mozambique (DPA)
Secretariat for Food and Nutrition Security - Mozambique (SETSAN)
Sokoine University - Tanzania
Tegemeo Institute - Kenya
Tourism Council of Zambia
Uganda Coffee Development Authority
Uganda National Council of Science and Technology
University of Bamako - Mali
University of Botswana
University of Ghana
University of Nairobi - Kenya
University of Namibia
University of Pretoria - South Africa
University of Zambia
Zambia Agriculture Commodity Agency (ZACA)

African Implementing Partners

AATF (African Agricultural Technological Foundation)
ABS (African Breeders Service)
ACF (Agricultural Consultative Forum - Zambia)
ACTIF (African Cotton and Textile Industries Federation)
ACTS (African Centre for Technology Studies)
Advocates Coalition for Development and Environment (ACODE - Uganda)
AfricaBio
African National Seed Trade Associations (19)
African Spices
AFSTA (African Seed Trade Association)
Ag Bios
Agribusiness Forum (Zambia)
Agricultural Consultative Forum (Zambia)
ASNAPP (Agribusiness in Sustainable Natural African Plant Products)
AVD (Mali)
Bankers Association of Zambia

Bimzi International (Southern Africa)
 Cashew Processors and Exporters Association of Ghana (CAPEAG)
 Cereal Growers Association (Kenya)
 CEPAGRI (Agriculture Promotion Centre - Mozambique)
 CGA (Cereal Growers Association - Kenya)
 Commission for S&T-Tanzania
 Cooperative College (Kenya)
 EDE-Consulting
 Egerton University (Kenya)
 Farm Inputs Promotion Africa (Kenya)
 Federation of Associations of Ghanaian Exporters (FAGE)
 Forest Fruits (Zambia)
 GAPTO (Ghana Agricultural Producers and Traders Organization)
 Ghana Association of Vegetable Exporters (GAVEX)
 Golden Valley Agricultural Research Trust (Zambia)
 Grain Traders Association (Zambia)
 Houghton Avocado Products Ltd. (Kenya)
 Hygro Tech Company (Southern Africa)
 IDC (Integrated Development Consultants - East Africa)
 IER (Institut d'Economie Rurale - Mali)
 IPR (Institut Polytechnique Rurale, Katibougou - Mali)
 ikuru (Mozambique)
 Imani Development (East Africa)
 Kapchorwa Commercial Farmers Association (KACOFA - Uganda)
 Kenya Agricultural Commodity Exchange (Kenya)
 Mango Farmers Association of Dangme West - Ghana
 MUIENR Geographic Services (Uganda)
 Mumford Seed Company (Southern Africa)
 Naivasha Dairy Training (Kenya)
 NASFAM (National Smallholder Farmers' Association of Malawi)
 Nash Imports (Southern Africa)
 National Irrigation Research Center (NIRC - Zambia)
 OLIPA-ODES (National Cooperative Business Association - Mozambique)
 Potato Growers Association (South Africa)
 Private Sector Foundation of Uganda
 Savanna Agricultural Research Institute (SARI) - Ghana
 Sea-Freight Pineapple Exporters of Ghana (SPEG)
 Stellenbosch University (South Africa)
 Tegemeo Institute (Kenya)
 The AIDS Support Organization (TASO)
 Total Land Care (TLC - Malawi)
 Traders' associations (East Africa)
 Uganda Flower Exporters Association (UFEA)
 World Wide Sires (Kenya)
 Yilo Krobo Mango Growers Association - Ghana
 Zambia Agriculture Commodity Agency
 Zambia Coffee Growers Association
 Zambia Export Growers Association
 Zambia Export of Zambia
 Zambia Export Promotion Board
 Zambia National Farmers Union

International Private Sector

Abt Associates Inc.
ACDI/VOCA
Action AID
Adventist Development and Relief Agency (ADRA)
African American Institute
African Wildlife Foundation
Africare
CARANA Corp.
CARE
Catholic Relief Services
Chemonics International
CLUUSA (National Cooperative Business Association)
Cotecna
DAI (Development Alternatives, Inc.)
Danforth Plant Science Center
Dexis Consulting Group
Dunavant Cotton
ECOTRUST
Elan Consulting
Emerging Markets Group
Fairtrade Labelling Organizations International (FLO)
Fintrac
Geomar
Heifer Project International
Hunger Alert
International Business Initiatives
International Union for the Protection of new Varieties of Plants (UPOV)
Kick Start
Korea Textile Development Institute - Kenya
Land O' Lakes
Markets Matter Inc.
Masterfoods, Inc.
Opportunities Industrialization Centers International (OICI)
Rainforest Alliance
Save the Children
The Services Group
Syngenta
TechnoServe
TLC (Total Literacy Campaign)
World Cocoa Foundation
World Council of Credit Unions (WOCCU)
World Federation of Logistic Organizations
World Forestry Center
World Vision
World Wide Sires

Regional Organizations

ASARECA (Association for Strengthening Agricultural Research in Eastern and Central Africa)
CILSS (Comité Inter-Etate pour la Lutte contre la Sécheresse au Sahel; Permanent Interstate Committee for Drought Control in the Sahel)

COMESA (Common Market for Eastern and Southern Africa)
 CORAF/WECARD (West and Central African Council for Agricultural Research and Development)
 EAC (East Africa Community)
 EAFCA (East African Fine Coffees Association)
 EAGC (Eastern Africa Grain Council)
 EARRNET (East Africa Root Crops Research Network)
 ECABIO (Eastern and Central Africa Biotechnology and Biosafety Program)
 ECABREN (Eastern and Central Africa Bean Research Network)
 ECAPAPA (Eastern and Central Africa Program for Agricultural Policy Analysis)
 ECOWAS (Economic Community of West African States)
 ESADA (Eastern and Southern African Dairy Association)
 FACIA (Federation of African Agri-Input Trade Associations - West Africa)
 FANRPAN (Food, Agriculture and Natural Resources Policy Analysis Network)
 FARA (Forum for Agricultural Research in Africa)
 IGAD (Intergovernmental Authority on Development)
 INERA (Institut de l'Environnement et Recherches Agricoles - Burkina Faso)
 INIBAB (International Network for the Improvement of Banana and Plantain)
 INSAH (Institut du Sahel)
 NEPAD (New Partnership for Africa's Development)
 PRAPACE (Potato and Sweet Potato Improvement Program in Eastern and Central Africa)
 RECAO (Network of Chambers of Agriculture - West Africa)
 RESIMAO (West African Network of Market Information Systems)
 ROPPA (Network of Farmers' and Agricultural Producers' Organizations of West Africa)
 SADC (Southern African Development Community)
 SARI (Savanna Agricultural Research Institute - West Africa)
 SARRNET (Southern Africa Root Crops Research Network)
 SOFESCA (Soil Fertility Consortium for Southern Africa)
 Southern African Poverty Network
 WAEMU (West African Economic and Monetary Union)

International Research Institutions

AFRENA (Agroforestry Research Networks for Africa)
 AVRDC (World Vegetable Center)
 CIAT (International Center for Tropical Agriculture)
 CIMMYT (International Maize and Wheat Improvement Center)
 CIP (International Potato Center)
 Cornell University
 CSIRO (Commonwealth Scientific and Industrial Research Organization)
 ICRAF (World Agroforestry Center)
 ICRISAT (International Crops Research Institute for the Semi-Arid Tropics)
 IFDC (International Fertilizer Development Center)
 IFPRI (International Food Policy Research Institute)
 IITA (International Institute for Tropical Agriculture)
 ILRI (International Livestock Research Institute)
 INIBAB (International Network for the Improvement of Banana and Plantain)
 International Gorilla Conservation Program
 Iowa State University
 ISAAA (International Service for the Acquisition of Agri-biotech Applications)
 Katholieke Universiteit Leuven (Belgium)
 Louisiana State University

Michigan State University
Ohio State University
Oregon State University
Purdue University
Rutgers University
STCP (Sustainable Tree Crops Program)
University of Arkansas at Pine Bluff
University of California at Davis
University of Georgia
University of Leeds (UK)
University of Pennsylvania
Virginia Polytechnic Institute and State University (Virginia Tech)
WARDA (Africa Rice Center)
Western Michigan University

Private Sector Partners

Arulussa Seed Company (South Africa)
Bruno Enterprises (South Africa)
Cape Natural Teas (South Africa)
Chevron (Angola)
Cooperative Bank (Kenya)
Freshmark (Southern Africa)
Kraft Foods (Côte d'Ivoire)
Pick-N-Pay Foundation (South Africa)
Royal Ahold (Netherlands)
Southern African Extracts and Colorants Company (SAECO)
Stanbic Bank (Uganda)
Sun International Hotels (Zambia)

Other Donors

African Development Bank
Department for International Development (DfID-UK)
European Union
Food and Agriculture Organization of the United Nations (FAO)
German Technical Cooperation (GTZ)
Government of South Africa
Japan International Cooperation Agency (JICA)
SDC (Sustainable Development Commission - UK)
Swedish International Development Agency (SIDA)
United National Environmental Program (UNEP)
World Bank
World Food Program (WFP)

ANNEX 2: IEHA OPERATING UNITS' 2006 ANNUAL REPORTS

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN EASTERN AND CENTRAL AFRICA, FY 2006

FY 2006 IEHA Performance Overview

The IEHA portfolio of USAID/East Africa's office of Regional Economic Growth and Integration (REGI) is implemented through African regional organizations. The major objectives are to increase agricultural productivity and competitiveness and to facilitate regional trade to open up wider markets and improve regional food security. The major partner for science and technology is the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA). The Common Market for Eastern and Southern Africa (COMESA) is supported by IEHA to improve the efficiency of certain regional value chains through the Regional Agricultural Trade Expansion Support project (RATES). COMESA is also supported by member states and donors to coordinate implementation of CAADP, the Comprehensive African Agricultural Development Program. A system has been put in place to develop regional and national CAADP compacts by the end of FY 2007, strengthening and aligning investment plans.

Regional organizations help coordinate action by scientists and institutions in different countries to meet common objectives, sharing scarce resources. They make technologies and best practices available more efficiently than countries could operating in isolation. They improve the common policy environment and reduce barriers to trade. The recent external evaluation of IEHA identified positive synergy between IEHA activities supported by USAID/East Africa and by the Kenya and other bilateral Missions.

Major IEHA Program (plus Title II) outputs in FY 2006:

- Over 980 agriculture-related firms were helped to adopt production and processing practices that will enable them to meet international market standards.
- Nearly 2,800 men and 850 women were trained in good agricultural production and marketing practices.
- More than 315 organizations (producers' organizations, water user associations, trade and business associations, and CBOs) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access business development services for members.
- Over 35 women's organizations were helped to acquire skills that will enable them to: (a) diversify their livelihoods; (b) increase their access to and control of food and other resource; and (c) increase their incomes.
- 65 public-private partnerships were formed.
- More than 30 new technologies were transferred to producers, leading to improved production and marketing efficiencies.

FY 2006 IEHA Performance

Science and Technology

In the past year, ASARECA put together a new Operational Plan supported by numerous donors. It will improve the Secretariat's efficiency and capacity to manage all the regional activities laid out in its 2005 strategic plan. In 2005, the Association managed 17 networks and programs, and collaborated with the National Agricultural Research Systems (NARS) of the 10 member countries, International Agricultural Research Centers (IARCs), universities, and other partners, on 90 research projects.

USAID/East Africa supported five networks/programs completing activities and contributed to the costs of the Secretariat. The biotechnology (ECABIO) and policy (ECAPAPA) programs, the commodity networks for



Farmers of the Leguruki Specialty Coffee Group hand-select "cherries" before processing

beans (ECABREN, implemented with the international research organization, CIAT), cassava (EARRNET, implemented with the International Institute of Tropical Agriculture), and potato and sweet potato (PRAPACE, implemented with International Potato Center) showed solid success on the IEHA output indicators. Jointly they made 14 new technologies available for regional transfer. These programs worked with a total of 114 partner organizations, 84 farmers' and community organizations, and 135 private firms to move technologies to final beneficiaries in the member countries. Over 1,300 men and 460 women received short-term training in a wide variety of technical topics.

To implement the Regional Approach to Biotechnology and Biosafety Policy in Eastern and Southern Africa (RABESA), COMESA drew on the expertise at

ECAPAPA and ECABIO with assistance from the African Centre for Technology Studies and the Program on Biosafety Systems (PBS) to develop a common regional framework for laws and regulations.

ECAPAPA worked with the International Livestock Research Institute (ILRI) and RATES to harmonize regulations that govern trade in dairy products, organized meetings of representatives of regulatory agencies, developed training materials for small dairy traders, and agreed on standards for hygienic milk handling equipment and for the certification of traders. A memorandum of understanding was signed by dairy regulators in Rwanda, Kenya, Tanzania, and Uganda to apply these training guides, facilitating cross-border recognition of certified traders. ECAPAPA's program for harmonizing seed laws led to revised certification procedures and harmonized seed trade standards for Kenya, Uganda, and Tanzania.

The commodity networks are managing the final year of their regional projects, which are implemented by scientists in national research institutions. Activities include systematic screening of the best genotypes for yield, resistance to major pests and diseases, improved nutritional content (in collaboration with the CGIAR Harvest Plus program), and suitability for specific markets and industries. The adoption in past years of bean, cassava, potato, and sweet potato varieties selected through this regional process was documented in Ethiopia, Uganda, Kenya, Tanzania, Rwanda, and Madagascar. Improved seed systems, pest management, post-harvest, and other technologies are being regionally tested and validated.

Agricultural Trade and Marketing Systems

The Mission's program in support of expanded regional trade has COMESA as the main regional partner. It has been supported by IEHA, the TRADE initiative, now the new African Global Competitiveness Initiative (AGCI), and includes direct support to COMESA and two contract projects, the regional TRADE hub and RATES. IEHA funds have partially supported RATES, which is bringing together public and private partners to facilitate intraregional and global trade by focusing on integrated value chains for four commodities: specialty coffee, maize and other grains, cotton, and dairy.

The approach for each commodity is to catalyze formation of a regional association of the major private sector partners and country-level associations. The oldest, the East African Fine Coffees Association (EAFCA), has been very successful linking buyers from high-profile companies including Starbucks and Green Mountain with producers and exporters of high-value coffees; it has been transformed from a fully donor-funded project into a dynamic private sector-supported trade association and quickly reaching financial sustainability. In 2006, EAFCA met all of its own operational expenses from self-generated revenues.

The new East African Grains Council (EAGC) is implementing a strategy for better coordination between the private sector and public agencies to facilitate transparent, structured trade. It is promoting warehouse receipt and other collateral management systems to stabilize supplies in privately managed stocks. It is in active dialogue with the World Food Program and other agencies to bring procurement and food aid commodities to the private sector-based regional trading system.

The African Cotton and Textile Industry Federation (ACTIF) is improving integration among partners in the regional textile industry, the main buyer of cotton lint produced by the area's farmers, and improving links to the U.S. market through the African Growth and Opportunity Act (AGOA). The Eastern and Southern Africa Dairy Association (ESADA) has made very rapid progress in overcoming bottlenecks to regional trade in dairy, a relatively small but income-producing industry.

Internet connections in the region are increasingly reliable. The Regional Agricultural Trade Intelligence Network (RATIN) (www.ratin.net), a leading source of information on market prices and factors that influence them received over 12,000 distinct visitors, who made over 218,000 hits in FY 2006. There are now 1,400 subscribers to a weekly price bulletin and a monthly newsletter, both available through the site. The trade linkage sites catalyze more open, orderly, and structured trading. In 2006 www.tradeafrica.biz catalyzed over \$230 million worth of grain trade, and had nearly 11,000 distinct visitors. Some \$191 million in offers to buy and sell cotton were posted on www.cottonafrica.com which received over 30,000 distinct visitors. A trading platform is being developed by ESADA, which will be posted on www.dairyafrika.com.

Regional trade is growing steadily. Compared to 2001, combined formal trade reported through COMESA in the targeted commodities increased by over 57 percent through December 2005—the RATES five-year goal was 35 percent. Last year the value of specialty coffee exports increased by over 28 percent over 2004. For the other RATES commodities, however, drought and other factors pushed both production and intra-regional trade figures down in calendar 2005, the most recent period for which figures are reported.



Maize hybrid seed demonstration plot (Uganda)

As measured by indicators being monitored, RATES moved its agenda forward significantly in FY 2006. Nearly 850 private firms; 260 farmer, trade and business associations; and 17 women's associations benefited directly, and 28 public-private associations were formed. A total of 1,364 men and 329 women were trained at 32 events. RATES works to strengthen the organizational capacity of regional organizations so that they can function effectively and sustainably when the project ends.

Vulnerable Groups and Countries in Transition

IEHA has been primarily a mechanism for implementing a growth strategy and focusing investments where they will have the most impact on the productivity, competitiveness, and incomes of smallholders. Over the past two years the Initiative has increasingly focused on a very high priority issue for this region: the huge disproportion between the vast resources spent for short-term humanitarian assistance and food aid for chronically food-insecure farm households, and the much lower level of resources available for longer-term, sustainable development for smallholder farmers. The goal of ending hunger cannot be achieved if millions of small farm households are trapped in chronic food insecurity. Through the Famine Prevention Fund, a separate International Disaster Famine Assistance (IDFA) funded mechanism, USAID/East Africa is implementing two projects to reduce vulnerability to food insecurity, using regional mechanisms linked closely with ASARECA and COMESA. These activities directly support the IEHA pillar on vulnerable groups and countries in transition and CAADP Pillar III, which is building regional capacity to increase and manage food supplies, reduce hunger, and improve responses to food emergency crises.

The Crop Crisis Control Project (C3P) is a \$5 million program to coordinate a regional response to two diseases, cassava mosaic virus (CMD) and banana xanthomonas wilt (BXW), that devastate these major staple crops of smallholders Burundi, Democratic Republic of Congo (DRC), Rwanda, Kenya, Tanzania, and Uganda. This project is working to build a regionally coordinated approach to making technologies and knowledge available to the smallholders at greatest risk, and to facilitating the recovery of household livelihoods and incomes as the diseases pass through.

Systematic disease surveys carried out this year in all six countries identified banana wilt (BXW) for the first time in Kenya. The spread of the disease, which was first identified in Uganda in 2002, is now being tracked in collaboration with national institutions in all six project countries. The cassava program updated data on incidence and severity and identified sources of resistant varieties for multiplication and distribution. This exercise facilitated the ability of all project partners to coordinate with other organizations working with cassava, guide effective coordination with other players, and guide market-oriented and demand-driven approaches to disseminating material using vouchers.

The extent and causes of food insecurity in the target countries are being assessed, building on household surveys and secondary data from multiple sources. The International Institute of Tropical Agriculture's GIS laboratory is pulling these results together to map the importance of cassava and bananas for food security and track the two diseases and other risks of food insecurity.

In FY 2006, the East Africa, Kenya, and Ethiopia Missions worked together to design the Regional Enhanced Livelihoods in Pastoral Areas (RELPA) program to address drought and famine. The \$19.8m program will increase the resiliency of pastoralists and agropastoralists in drought-prone areas by stabilizing and improving their livelihoods. RELPA is focused in the "Mandera Triangle" where northeast Kenya, southeast Ethiopia, and southwest Somalia meet, which is where pastoralists regularly move across national borders in search of water and pasture. The program has been designed in the context of CAADP to lay the foundation for a sustained regional focus on mitigating pastoralist vulnerability and increasing the economic viability of the arid and semi-arid lands of the region.

RELPA links a number of activities: (1) emergency assistance to affected populations, (2) conflict prevention and mitigation, (3) livestock-based and alternative livelihood development, (4) increased COMESA involvement and representation of pastoralists, including regional policy affecting them and cross-border trade in live animals, and (5) improving regional early warning information and dissemination. To increase regional ownership and sustainability and leverage other donor resources, several of these activities will be managed by COMESA, linked to coordination of CAADP pillar III. The program, which was planned and funded in FY 2006, will be implemented over the next two years.

Impact highlights in FY 2006 include:

- A significant (29%) increase in international exports of specialty coffee (to \$162 million), accompanied by a substantial decline in exports of cotton textiles (34%, to \$288 million)
- A 27% decline in intra-regional exports led by maize (-59%, to \$20 million) and dairy products (-4.5%), but exports of cotton to the region increased by 15% to \$37 million.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES OF THE EGAT OFFICE OF AGRICULTURE, FY 2006

FY 2006 IEHA Performance Overview



South Africa: Proudly producing peppers in a small greenhouse business.

In FY 2006, USAID/EGAT/AG mobilized the capacities of the U.S. university community and the Farmer-to-Farmer Program to support IEHA. Collaborative Research Support Programs (CRSPs) worked with IEHA country counterparts to address agricultural constraints, while building institutional capacity. The Farmer-to-Farmer program provided U.S. volunteers to strengthen the capacity of their IEHA counterparts. U.S. universities also provided technical support to Missions and Washington Bureaus through the Partnerships for Food Industry Development (PFID) Programs and the Food Security III Programs. In addition, core funding to the International Fertilizer Development Center (IFDC) enabled them to continue dissemination of best practices and build private sector input market capacity.

Michigan State University, for instance, provided support to IEHA countries under four programs: Food Security III; the Bean and Cowpea CRSP; the PFID Program on Fruits and Vegetables; and, working with the Zambia and Ghana missions, a long-term agricultural training pilot working to strengthen public and private organizations and build capacity in research, production, trade policy, training, management and outreach.

Major IEHA Program achievements in FY 2006 include:

- Over 16,000 men and nearly 16,000 women were trained in good agricultural production and marketing practices.
- Nearly 150 organizations (producers' organizations, water user associations, trade and business associations, and community-based organizations) were helped to (a) understand and contribute to good governance in their areas of concern; and (b) access business development services for members.
- 65 women's organizations were helped to acquire the skills they need to: (a) diversify their livelihoods; (b) increase access to and control of food and other resource; and (c) increase incomes.
- More than 30 public-private partnerships were formed.
- Over 100 new technologies were transferred to producers, leading to improved production and marketing efficiencies.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

IEHA has provided a framework for integrating bilateral efforts into regional programs, establishing partnerships, and building the case for cooperation rather than competition among researchers. It is also influencing the formulation of a near-term vision, emphasizing the links between agricultural productivity, technology development, and market opportunities. The Sustainable Commercialization of Seeds in Africa (SCOSA) Program, implemented by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in collaboration with Iowa State University, facilitates technical assistance to farmers as well as bringing about seed trade harmonization agreements, a more sustainable commercialized seed system, increased market access for roots/tubers, coarse grains, bananas/plantains, and continuing its progress in maize production.

The **Aquaculture** CRSP created and evaluated methods to increase the survival of hatchery catfish for stocking Lake Victoria and provide bait for fisherman. The program has sensitized farmers to aquaculture as a business and small-scale fish farms have emerged in scattered areas.

The **Global Livestock (GL)** CRSP conducted research on pastoral risks, markets and trade, livestock early warning systems, market information systems, the interface between livestock and wildlife, and the importance of animal protein in human cognitive learning. The program piloted an Avian Flu School Assessment and an international "train-the trainer" course. This CRSP has trained over 13,000 people in non-degree courses, and 90 students have completed degree programs.

The **Integrated Pest Management (IPM)** CRSP worked with Malians to identify viruses that cause serious produce loss and screen tomato varieties for resistance to disease. Tolerant varieties that yield three times more than local varieties were identified, contributing to the nutritional and economic wellbeing of farm households. This CRSP also worked with Ugandan tomato farmers to prevent bacterial wilt, a soil borne disease that causes 100% mortality in tomato plants it infests. Farmers were trained to graft tomato plants on the rootstock of an indigenous plant, resulting in total resistance to bacterial wilt and an increase in the useful life of the plants for an additional two months.

The **International Sorghum and Millet (INTSORMIL)** CRSP developed improved varieties of sorghum that can be stored as well as used for porridges and the brewing industry. It worked with poultry farmers and animal feed industries, and encouraged market linkages to absorb surplus production. Additional uses and new markets helped stabilize prices.

In Mali the **Soils** CRSP continued to work on developing a ridge tillage technique for sandy soils and quantifying the deep drainage the technique produces. This research may be one of the first to obtain actual data on deep drainage. In Ghana, seven cultural practices were compared for their ability to build up soil organic matter, increasing knowledge about soil carbon content.

The **Farmer to Farmer (FTF)** Program provided technical assistance from American agricultural specialists in 12 African countries, including all the IEHA focus countries. Assignments in Africa focused on increasing productivity, operational efficiencies, management capabilities, and marketing capacities of small and medium-sized enterprises working along the dairy, horticulture, maize, and grain value chains. In IEHA countries, FTF directly trained over 18,000 people in FY 2006, 55% of whom were women. Volunteers contributed nearly \$1 million worth of their professional time.

EGAT/AG supported sub-regional organizations (SROs) in Africa to enable their members (national agricultural research institutions, universities, the private sector, and non-government organizations) to work

collaboratively to ensure that improved agricultural technologies are deployed and that an enabling policy stimulates national, regional, and international trade in agricultural products; capacity building; and resource mobilization. One SRO, CORAF (the West and Central African Council for Agricultural Research and Development), compiled an integrated database of improved agricultural technologies, a sub-regional electronic platform, and web portals for its 21 members (including all IEHA countries in the region). This strategic agricultural support should help halve hunger and poverty in Africa by 2015.

EGAT/AG, in collaboration with the Board for International Food and Agricultural Development (BIFAD), supported the Borlaug Leadership Enhancement Program (LEAP), BIFAD Long Term Training, and the Borlaug Women in Science Program. In 2006, eight students began their Borlaug LEAP internships; three more will begin next quarter. These two rounds of competition generated eleven awards (six for women, five for men) for African students from twelve countries (Ethiopia, Ivory Coast, Uganda, Sierra Leone, Kenya, Tanzania, Ghana, South Africa, Malawi, Zimbabwe, and Burundi/Rwanda).

BIFAD Long Term Training is funding pilot projects with the Association Liaison Office (ALO) for University Cooperation in Development (now Higher Education for Development) and Michigan State University (MSU). The ALO activities are implemented by Montana State and Ohio State universities; 18 students completed their course work in the U.S. and returned to their homes in Mali, Kenya, Uganda, and Tanzania to conduct their field research. The Malian students are working as a team to staff and direct a new agribusiness incubator to commercialize agricultural technologies. In addition, two partner universities in Mali received a private sector-generated donation of new computer software valued at \$240,000. Training teams have been mobilized to provide training for the faculty at both institutions.

In FY 2006, 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 in conjunction with the 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 up with agricultural science experts.

Improved Policy Environment for Smallholder Agriculture

During FY 2006 Michigan State University supported IEHA countries under the Food Security III Program. The program improved food systems performance by strengthening policies to support agricultural productivity, commodity value chains, input/output markets, and trade. MSU partnered with African organizations on degree training and short-course/in-service training in research/outreach skills.

EGAT/AG's Regional Network on HIV/AIDS, Rural Livelihoods and Agriculture (RENEWAL) Program, addresses the HIV/AIDS pandemic. The program focuses on understanding how rural livelihoods, particularly those deriving from agriculture, contribute to the further spread of HIV/AIDS, how food and nutrition related policies and programs can help prevent and mitigate HIV/AIDS, how regional networks can contribute to prevention and mitigation of HIV/AIDS, and how regional networks can respond efficiently to the pandemic.

The Gender Informed Nutrition and Agriculture Alliance (GINA) Program continued its work on strengthening the relation between agricultural productivity and nutrition in IEHA focus countries. The program's interventions have resulted in: development and implementation of community-based nutrition and agriculture projects to improve nutrition for infants and young children; increased availability of nutrient-rich crops for consumption; development and distribution of educational materials on complementary feeding, micronutrient rich foods, hygiene and sanitation, intra-household food distribution; and increased positive behaviors such as growth monitoring and promotion. Common features of GINA implementation, derived from lessons learned and applied across countries, include:

- Common packet of agriculture-nutrition interventions;
- Common implementation framework integrating agriculture and nutrition activities; and
- Common monitoring and evaluation systems to capture project data, specifically weight-for-age of children less than five years old.

In Uganda, value-addition technologies developed for orange-fleshed sweet potatoes (OFSP) continue to be a pull factor in attracting rural and vulnerable households to GINA interventions. . In 2006, households received training in OFSP multiplication and processing, resulting in the production of Vitamin A-rich foods to diversify children's diets and a potential income generation avenue for rural poor women.

Increased Agricultural Trade

The Program for Food Industry Development (PFID) partnered with universities, NGOs, and the private sector to support field operations to strengthen food industries, including fruits/vegetables, meat/seafood and poultry, and natural products. In Ghana, PFID interventions helped build capacity for all participants in the horticulture supply chain. They have also helped form an NGO capable of leading the horticultural industry in sustainable and profitable development, and the development and distribution of commercially viable nutritional products for children and pregnant women. In southern Africa, in addition to horticultural sector development and market linkages, PFID also supported food security by converting surplus agricultural products into fortified products for infants, school feeding programs, and centers for HIV/AIDS patients. This brought both greater food security and better knowledge of markets and food situations.

EGAT collaborated with the International Fertilizer Development Corporation (IFDC) to increase smallholder farmers' access agricultural productivity-enhancing inputs and policymakers' experimenting with market-friendly approaches to improve producer access to inputs. In 2006, IFDC was one of the principal organizers of the Fertilizer Summit for African Leaders in Abuja, Nigeria, an event that resulted in African leaders pledging to increase the use of fertilizer as part of the fight against poverty and hunger.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES OF THE EGAT OFFICE OF ENVIRONMENT AND SCIENCE POLICY

FY 2006 IEHA Performance Overview

The Environment and Science Policy (EGAT/ESP) Program supports a portfolio of biotechnology, climate change, and agricultural/environmental research activities. It coordinates Agency efforts related to science and technology by representing the Agency in multilateral environmental agreements, reviewing environmental aspects of multilateral development bank (MDB) programs, and formulating policy on environment and conflict.

In FY 2006 EGAT/ESP's support to the Consultative Group on International Agricultural Research (CGIAR) continued to develop and disseminate productivity-increasing and resource-conserving technologies. USAID/EGAT provided over \$12 million in core funding to 16 International Agricultural Research Centers (IARCs) for work in sub-Saharan Africa. EGAT/ESP facilitated partnerships with Missions and IARCs, NGOs, the private sector, and national agricultural research systems for technology transfer and dissemination activities aiming to increase the incomes of smallholder farmers, often by working through mechanisms provided by EGAT. IEHA has had a positive impact on CGIAR by providing a framework for integrating bilateral efforts into regional programs, establishing partnerships, and building the case for cooperation among national, regional, and international research organizations.

Finally, during FY 2006 over 8,000 men and over 2,500 women were trained in good agricultural production and marketing practices.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture



Field trial of transgenic potatoes (Spunta variety) transformed with a gene from *Bacillus thuringiensis* (Bt) to confer resistance to the potato tuber moth.

In FY 2006 \$12.5 million of EGAT's core CGIAR funds were spent in and for Africa. These funds were used to generate technologies and policies that are disseminated by National Agricultural Research Systems (NARS), NGOs, and the private sector. One example is the fertilizer tree used in maize systems in Zambia, where 77,000 farmers have adopted International Center for Research in Agroforestry (ICRAF) generated technology based on support from both the Mission and USAID/Southern Africa. In these and dozens of other cases, EGAT/ESP-supported technologies have enabled Missions to invest in highly effective income-generating and food insecurity-

reducing interventions. Missions translate EGAT's CGIAR investments into field-level gains, and EGAT-supported technologies and policies add tremendous value to Mission programs.

IEHA influences EGAT's involvement with CGIAR in fundamental ways. For example, IEHA influence has framed short-term goals that emphasize agricultural productivity gains that respond to market opportunities. This has major implications for both research priorities and investments that foster technology dissemination and uptake, especially by the private sector. The Sustainable Commercialization of Seed in Africa (SCOSA) program, supported by the USAID Africa Bureau and both the EGAT Office of Agriculture and the EGAT Office of Environment and Science Policy, is implemented by the CGIAR's International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in partnership with Iowa State University and the International Fertilizer Development Center. SCOSA facilitates technical assistance to farmers that results in seed trade harmonization agreements, a more sustainable commercialized seed system, and increased adoption of improved varieties generated by both public and private partners.

FY 2006 featured broad gains across the CGIAR research initiatives in Africa.

Drought-tolerant maize: CGIAR's maize and wheat center, CIMMYT, developed maize varieties and hybrids that are tolerant of drought and low soil levels; it received CGIAR's highest award in 2006. The new varieties are now being grown by some 250,000 farmers on close to 1 million hectares, and seed is now available to push that total up to 2.5 million ha across eastern and southern Africa. Wide-scale testing results demonstrated that under the production circumstances most similar to those of resource-poor farmers in Africa (that is, at yield levels of 1-5 tons/ha), the CIMMYT varieties yielded on average 20 percent more in the most difficult conditions and 5 percent more under favorable conditions. Among these, the best stress-tolerant hybrids increased yields as much as 100 percent during drought, showing the great potential of maize genetic resources.

More than 50 open-pollinated and hybrid varieties were disseminated to public and private partners (NARSs, NGOs, and seed companies) for seed production and dissemination to farmers. CIMMYT researchers are sure the genetic diversity in maize is sufficient to push the drought tolerance in new varieties significantly further. Yield gains are such that every year of research can add another 100 kg of grain grown under drought conditions.

Quality protein maize (QPM): In West Africa QPM has grown in importance, offering farmers both high yields and a product that is superior for either food or feed. Growth in the poultry and swine sectors is establishing stronger demand for a high-quality feed product. In 2006, record yields of 7 tons/ha were achieved in Ghana. Higher yields combined with strong market demand translates into farmers' decisions to invest more in seed, fertilizer, and improved handling, adding further value along the commercial supply and market chain.

Rice: Improved rice technologies developed by CGIAR researchers and partners have increased yields from 2 to 4 tons/ha in Mauritania. A new rice variety, Sahel 108, now covers 70 percent of the rice-growing region in Mauritania and the Senegal River Valley. NERICA-CGIAR's "new rice for Africa," continues to generate substantial interest from farmers in both East and West Africa, where its ability to out-compete weeds and produce a premium quality product makes it the choice of thousands of farmers. Area under cultivation is expanding, and surpassed 100,000 ha in 2006.

Drought-tolerant sorghum: S-35, a new ICRISAT sorghum variety that is drought- and pest-tolerant is being grown by tens of thousands of farmers on almost 30 percent of the sorghum area of Chad and Cameroon. The variety provides substantial yield gains and reduced production costs (due to pest resistance).

Hybrid millet: In Namibia, the Okashana I hybrid millet is being grown on thousands of hectares and expanding rapidly; farmers are shifting to ICRISAT-based hybrids for greater profits due to high yield and excellent resistance to downy mildew, which lower production costs. This is part of a wave of shifts to hybrids by African smallholders-increasing yields, incomes, and demand for high-quality seed.

Groundnut exports: ICRISAT has developed a new aflatoxin assay test that is being adapted in Malawi to ensure that groundnut exports to the UK expand despite strict EU standards. This is the first step in rebuilding Malawi's traditional groundnut export market-in 2006, exports resumed, with farmers receiving a premium price for their product. ICRISAT groundnut varieties-resistant to disease and ideal for the market-are raising yields by nearly 100 percent and partner farmer organizations are training farmers in handling methods that prevent aflatoxin contamination.

Fish production: CGIAR's WorldFish released a new strain of tilapia for smallholder fish farmers in southern Africa that grows 70 percent quicker than current strains, allowing farm families to harvest three times a year. Production from Malawi's fishponds is increasing at 22 percent a year, providing smallholders (avg. farm size: 2 ha) increased income. Aquaculture adopters have increased their incomes over non-adopters by more than 50 percent.

Bean adoption: Root-rot-resistant beans developed by the International Center for Tropical Agriculture (CIAT) are doubling bean yields in Kenya, Uganda, and Tanzania. Farm surveys showed that 40 to 80 percent of farmers have adopted the new variety in the bean-producing areas of Kenya. Beans are an important cash crop for smallholders in East Africa; the new strains offer substantial income benefits.

Mixed farming-crops and livestock: 100,000 Kenyan farmers have adopted legume fodder trees to boost milk production and restore land quality. The average benefit from the improved protein in the fodder is \$150 per year-a substantial gain for household dairy producers, most of whom are women. Smallholder dairy in Ethiopia continues to expand. Household nutrition gains are associated with improved feed practices and cross-bred cattle. Artisanal butter and cheese-making are increasing incomes by addressing perishability issues in rural areas.

Agroforestry: In southern Africa, fertilizer trees are being used to boost maize yields by 50 to 100 percent, with more than 300,000 adopters by 2006. Some 2 million ha of farms have now adopted yield- and income-increasing land-conserving technology. Benefits range from food security (1 ha of tree fallow translates into increased maize availability for 100 days for 5 people), increased fuel wood availability (11 percent) and increased carbon storage (roughly 3 t/ha).

Specialty products: ICRAF is working with Unilever to build a new \$120 million export market in Allanblackia oil. This rainforest tree has unique properties and can be cultivated across wide areas of Central Africa. The oil is worth \$600 per ton in Europe of which the farmer receives approximately \$250 per ton.

Technology and Policy: East African Highland (EAH) bananas (a staple food crop in Uganda) resistant to the fungus, Black Sigatoka, are being developed by a partnership led by the Agriculture Biotechnology Support Project II (ABSPII) with scientists from National Agriculture Research Organization (NARO), the Laboratory of Tropical Crop Improvement, Katholieke Universiteit Leuven (KUL) and the Centre for Plant Sciences at the University of Leeds. An early step in this process is to test the efficacy of a new gene already introduced into the variety, Cavendish, where the genetic engineering technology has been well established, but not yet obtained in EAH banana varieties. The transgenic Cavendish bananas will now be tested in Uganda for their resistance to Black Sigatoka and will represent the country's first field trial of a transgenic plant. The Program for Biosafety Systems (PBS) has been working closely with this project to ensure methodical adherence to biosafety as it helps the Ugandan government develop its biosafety regulatory policy.

Nutrition: The International Potato Center (CIP) and International Institute of Tropical Agriculture (IITA) research has developed high beta-carotene orange flesh sweet potatoes with higher dry matter to appeal to African tastes; recent research in South Africa has confirmed that orange-fleshed potatoes increase Vitamin A status in children. In Mozambique, more than 1 million families now have access to the planting material, distributed by an NGO and national partners of the CGIAR. Major adoption is also occurring in Tanzania, Kenya, and Uganda.

Food security and income: One third of sub-Saharan Africans rely on cassava for over half of their calories. But every year 30% of the harvest (on average) is destroyed by cassava mosaic disease (CMD). The Donald Danforth Plant Science Center (DDPSC) is developing transgenic plants with resistance to CMD. USAID has been able to leverage its investment in cassava through a new partnership, the Virus-Resistant Cassava for Africa (VIRCA) project. With funding from the Monsanto Fund, the DDPSC and partners in Kenya, Uganda and Malawi will develop local cultivars resistant to CMD.

In addition, virus-resistant cassava from IITA has strengthened food security and economic viability for millions of farm families in East and Central Africa. In Uganda alone production has more than doubled, to 5 million tons, due to improved varieties. In Congo, 75 million planting stakes of CGIAR-improved varieties were distributed in 2006, contributing income and food security benefits to 140,000 farmers.

Improved Crop Technology: The African Agricultural Technology Foundation (AATF) is delivering improved crop technologies through public-private sector partnerships. Striga weed causes an estimated \$7 billion loss in maize yields in Africa every year, impacting the lives of over 100 million people. The AATF oversees a partnership between the International Maize and Wheat Research Center (CIMMYT), the Kenyan Agricultural Research Institute, BASF Corporation, NGOs, and Kenyan seed companies to develop and deploy a new striga-resistant maize for testing on over 10,000 farms in Kenya in 2006. The seed was made commercially available to Kenyan farmers in late 2006.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES OF THE OFFICE OF FOOD FOR PEACE, FY 2006

FY 2006 IEHA/FFP Strategy Overview

The Office of Food for Peace (FFP) primarily seeks to reduce food insecurity in vulnerable households by assisting those households unable to eat and to feed themselves adequately. In FY 2006, FFP carried out activities in six IEHA countries through highly integrated programs designed to meet the basic food needs of vulnerable households. By meeting the basic food needs of vulnerable households, FFP activities laid the foundation for agricultural transformation. In addition, FFP resources helped various private voluntary organizations (PVOs) implement local projects that support the goal of agricultural transformation.

Many of these programs strove to immediately reduce the vulnerability of those experiencing malnutrition, particularly pregnant and lactating women, as well as children under the age of five. Not only did the programs implement nutrition and food utilization components in 2006, but several programs also promoted basic water and sanitation-related improvements to lower malnutrition.



UGANDA: Food distribution at a World Food Program site.

In addition, the programs aimed to improve the ability of vulnerable households to feed themselves through increasing farm output, strengthening livelihoods, and improving access to markets both as sellers of agricultural products and as buyers. A large number of FFP activities in 2006 involved the dissemination of productivity-enhancing technologies. These technologies, once adopted and adapted to local conditions, reduced the vulnerability of many poor farm households. Other FFP activities in 2006 attempted to improve access to markets. FFP believes that improving food-related market structures and systems is vital for all IEHA countries as over 80 percent of farm households in three IEHA countries (Mozambique, Zambia and Malawi) are either buyers or net buyers of the staple food that they consume. IEHA activities help reduce agricultural market system inefficiencies that are harmful to vulnerable producer households, whether buyers or sellers.

FY 2006 IEHA/FFP Country Overview

- **Ghana:** FFP provided resources to three PVOs to implement multi-year programs largely focused on reducing food insecurity in the northern regions of the country. In FY 2006, FFP provided 54,870 MT (metric tons) of food assistance.
- **Kenya:** FFP provided resources to five PVOs to implement multi-year programs focusing primarily on reducing food insecurity in the northern, southeastern and western regions of the country.

- **Mozambique:** FFP provided resources to World Vision's Ovata Program to increase rural household income.
- **Zambia:** FFP provided a total of 4,500 MT of food assistance to support the Land O'Lakes program, improving food security in over 2,000 Zambian households.

FY 2006 IEHA/FFP Implementation Overview

FFP-Supported Activities that Reduced the Vulnerability of Households Unable to Eat Adequately

- **Ghana:** Adventist Development and Relief Agency (ADRA) distributed food to malnourished children and mothers, while Catholic Relief Services (CRS) provided food aid rations in its health, education and safety net program that increased the utilization of food for households and school-aged children.
- **Mali:** World Food Program (WFP) targeted nutritional activities to malnourished children and their families in the country's most food insecure areas.
- **Uganda:** ACDI/VOCA improved the nutritional status of 60,000 people living with HIV/AIDS (PLWHA) by providing monthly supplementary food rations.

FFP-Supported Training Activities that Improved Food Security

- **Ghana:** CRS educated primary school-age children in the areas of improved food availability, improved food access and improved food utilization. ADRA organized farmers into marketing groups and associations; trained farmers in quality produce and retail standards, market linkages, crop management, and soil fertility improvement; and provided business training for artisans.
- **Malawi:** FFP targeted resources at improving nutritional and health practices to foster sustainable livelihoods in vulnerable households.
- **Mali:** World Food Program (WFP) provided Food for Training activities to identify food insecure households.
- **Uganda:** ACDI/VOCA improved food security through its Farming as a Business (FaaB) training.

FFP-Supported Activities that Helped Vulnerable Households to Feed Themselves Better as a Result of Increased Farm Output, Increased Farm Income, and Improved Market Access

- **Malawi:** FFP targeted resources at implementing improved agricultural practices in vulnerable female and child-headed households and other farming households in order to 'protect and enhance their livelihoods capacities.' Program activities were business-oriented to help target households move from subsistence to commercial agricultural production.
- **Chad/Mali:** AFRICARE improved the food security of vulnerable households in 140 villages (of which 50 are in Mali) by increasing agricultural productivity, improving household marketing options, and diversifying farm household income.
- **Mali** CRS provided assistance to 18,000 agro-pastoralist households (approximately 200,200 beneficiaries) weakened by the 2004 locust attacks and 2005 drought. This FFP-supported program helped to restore their livelihoods and assets lost during previous food security shocks and strengthened their capacity to respond to future disasters. Program activities included seed fairs, increased and diversified agricultural production, and promoted increased savings.



With USAID funding and commodities, Land O'Lakes supports recovery efforts for food-insecure households through asset creation, especially all kinds of livestock.

- **Uganda:** ACDI/VOCA improved the food security and household income of 120,000 farmers through agricultural development.
- **Zambia:** FFP supported programs like the Land O'Lakes multi-year income-generating program, which is targeted at smallholder rural farmers. The Program developed dairy enterprises on small farms as an alternative to unstable rain-fed grain cropping and provided dairy cattle, technical assistance and training, as well as access to markets to enable smallholders to develop financially-viable small dairy enterprises on their family farms. It also provided technical assistance and training to dairy collection centers, and organized and built the technical capacity of dairy cooperatives which helped expand the marketing capacity of the dairy sector. Its "warehouse receipts" activity also allowed smallholder producers to participate in grain markets with the same advantages enjoyed by larger, more influential producers and firms.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN GHANA, FY 2006

FY 2006 IEHA Performance Overview

USAID/Ghana's capacity to achieve results in increasing small holder income areas has been greatly expanded through participation in IEHA. New technologies promoted by IEHA include improved seeds and fertilizer, plant spacing, improved management of tree crops, drip irrigation technology, improved post-harvest handling practices, and use of improved storage facilities.

The scope of commodities includes: citrus, tomatoes, onions, Voacanga and griffonia (medicinal plants), maize, pineapple, mango, papaya, Asian vegetables and cashews. A common denominator for all activities is the mainstreaming of new technology and management approaches for productivity increases which contribute to linking the small farmer to more remunerative markets.

Major IEHA Program achievements in FY 2006:

- The value of exported horticultural goods increased by \$5.4 million (8 percent) to \$24.7 million, despite a 7 percent drop in volume of exports.
- More than 40,000 households (over 37,000 of them vulnerable) benefited from agricultural interventions that increased and diversified food crop production, enhanced marketing opportunities, and food security.
- Over 300 agriculture-related firms were helped to understand and adopt production and processing practices that will enable them to meet international market standards.
- About 10,000 men and 8,000 women were trained in good agricultural production and marketing practices.
- More than 300 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organizations) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access needed business development services for members.
- Over 50 women's organizations were helped to acquire skills that will enable them to: (a) diversify their livelihoods; (b) increase their access to and control of food and other resource; and (c) increase their incomes.
- 68 new technologies were transferred to producers, leading to improved production and marketing efficiencies.
- Introduction of an improved okra variety that gives up to a 20-fold increase in earnings over traditional varieties



Continued policy reform and improvement of the enabling environment for investment and trade is critical to increasing Ghana's competitiveness in world markets and creating a private sector that can provide jobs and market opportunities. IEHA support has enabled USAID Ghana to provide technical assistance to the government in policy and regulatory reform and to help private sector firms and associations improve

business and marketing practices. IEHA support has also improved collaboration with the government to create legal and regulatory frameworks which support competitiveness. IEHA supported activities have resulted in:

- Improved information technology policies and improved phone and email linkages of rural producers to exporters and buyers.
- Streamlined customs valuation procedures.
- Improved labor dispute resolution procedures respected by both workers and employers.
- Revised fiscal and monetary policies that have improved banking and non-banking procedures, increase the supply of credit to the private sector, and facilitate increased outside investment.
- Implementation of a comprehensive training program to enable horticultural producers and exporters to meet quality, health and safety standards for export produce.
- A produce tracking system that provides electronic traceability of exports from farm to final point of sale.
- Certification for smallholders in best farming practices for environmental sustainability and food safety (as required by European distributors) which gives them access to large, lucrative European markets for the first time.
- A draft of a new national agricultural strategy that fosters increased commercial agriculture development.
- Training of government agencies in use of analytical model that will provide a more objective basis for identifying the sectors and activities that provide broader based, equitable economic growth and identifying the policies changes necessary to foster poverty reduction.
- Modernized processing facilities design which enabled a small firm to process 6,000 MT of fresh produce from smallholders in a year and supply 500 MT of pineapple concentrate to Coca Cola.
- The introduction of a Geographic Information System mapping participating farms for traceability.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

USAID/Ghana's focus on productivity in the agricultural sector, especially for smallholders, has been expanded through participation in IEHA. USAID considers productivity to be the net value producers can gain from their resources, not just physical yield. The scope of commodities covered by TIPCEE is considerable: citrus, tomatoes, onions, Voacanga and griffonia (medicinal plants), maize, pineapple, mango, papaya, Asian vegetables and cashews. A common denominator for all TIPCEE activities is the mainstreaming of new technology and management approaches for productivity increases which contribute to the transformation of the link between the small farmer and the end market.

TIPCEE provided support to a Ministry of Food and Agriculture (MOFA) led MD2 nursery program, which plans to set up 120 group nurseries by 2007; it can be considered a standard-setting example of transferring new techniques and technologies at the small farm level that translate into immediate revenue increases.

The Ghana portion of USAID's Program for Biosafety Systems (PBS) addresses biosafety as part of a sustainable development strategy. In 2006, its second year of implementation, significant progress was made: A biosafety regulation paper was drafted and is being finalized for stakeholder review. A national biotech/ biosafety policy was drafted, a food safety needs assessment report completed, and a food safety training workshop held. Key elements for interim biosafety regulations and institutional arrangements have been discussed, and a summary document is being prepared for submission to the GoG. A draft of Ghana biosafety law has been reviewed for submission to parliament and cabinet. Training activities in 2006 included a U.S.

study tour on confined field trials for six National Biosafety Authority (NBA) regulators; training for NBA staff in the enabling environment for confined field trials; training for inspectors and plant quarantine officials from Ghana and Nigeria in inspection methodologies; and training for members of parliament select committees on national and international regulatory regimes.

Title II Food Aid Programs are well integrated into the USAID Ghana/IEHA Private Sector Competitiveness Program. Work conducted under these programs includes the provision of agricultural extension expertise, supply of agricultural inputs, and creation of linkage to markets. As a result of these activities:

- 33 percent of project clients expanded their tree crop farms from 2.5 to between 5 and 40 acres.
- Crop yields increased as farmers adopted improved agricultural technologies, such as higher-yielding varieties, row planting, manure and fertilizer application, and adoption of leguminous cover crops.
- Yields of maize increased from 0.32 tons/acre to 1 ton/acre, soybeans from 0.2 ton/acre to 0.68 ton/acre, and groundnuts from 0.12 tons/acre to 0.72 ton/acre (twice the national average).
- Grain lost in storage was reduced from 30 percent to 2 percent.
- Months of household food shortage were reduced from 4 months to 1.3 months.
- With new storage structures 380 farmers reduced losses of onions from 40 percent to 20-25 percent.
- Pumping machines enabled farmers to undertake dry-season cultivation of chilis, okra, and tomatoes.
- Some mango farmers have become fruit exporters with annual incomes of over \$20,000.

Improved Policy Environment for Smallholder-Based Agriculture

USAID/Ghana continued its commitment to improving the policy environment for agricultural growth. With the GSSP project, it again supported design and implementation of a system to monitor progress toward achieving Ghana's updated Growth and Poverty Reduction Strategy (GPRS II), which emphasizes accelerated economic growth for poverty reduction. USAID is in the final stages of refining an economy-wide computable general equilibrium (CGE) model that will provide a useful framework for making strategic decisions at the regional and national levels. Results of this program are useful for analyzing sectoral linkages and multiplier effects and for exploring the long-run consequences of growth and structural change on poverty and inequality in various regions of the country. In 2006 GSSP completed a provisional ten-sector social accounting matrix (SAM) for Ghana and conducted modeling workshops on SAM construction and multiplier analysis. With the modeling nearing completion, analysis has begun on the implications of increasing energy costs on growth prospects in Ghana.

The enabling environment component of TIPCEE continued to be informed by its work with the GoG, private sector trade associations, and increasingly with the export development component. It links closely to GoG sector strategies, including the Financial Sector Strategic Plan (FINSSP), Private Sector Development Strategy, Trade Sector Support Program (TSSP), Food and Agriculture Sector Development Policy (FASDEP), Growth and Poverty Reduction Strategy II, and multi-donor budget support activities.

Through TIPCEE, USAID/Ghana provided assistance for revision of the Food and Agriculture Sector Development Program (FASDEP) and the development of laws and regulations on pesticide importation, manufacturing, and management in Ghana. On the monetary, fiscal, and macroeconomic front the Enabling Environment work with the Bank of Ghana (BOG) helped the GOG to keep macroeconomic policy stable. An advisor resident in the BOG supervised its capacity-building efforts. The TIPCEE program also worked with the National Labor Commission to develop its operational strategy and trained its mediators and commissioner in the U.S. In the energy sector it provided support to GOG energy institutions as they prepared a roadmap for development of a secondary market for natural gas in Ghana. Through TIPCEE's

efforts, three communications and information bills were finalized. Additional assistance from the USAID Last Mile initiative led to work with local Internet service providers to improve their advocacy skills and create an environment more conducive to private sector development.

Work in trade policy is fully integrated with the GoG Trade Sector Support Program. It includes establishing an effective-rate-of-protection methodology to give policy an informed basis for designing tariff regimes, research on options for tariff board operations, and further streamlining the duty drawback scheme. TIPCEE's resident advisor at the Ministry of Finance and Economic Planning (MOFEP) shepherded through new guidelines for the Venture Capital Trust Fund Act and is designing a training program for fund managers to operationalize the new facility.

Increased Agricultural Trade

USAID's agricultural trade portfolio lies largely within the TIPCEE domain. In FY 2006, TIPCEE worked to integrate smallholder farmers into export-oriented value chains that can consistently meet market demands in quality, volume, efficient logistics, and price. A focus on market information and criteria for export is supported by training in good agricultural practices, testing of new varieties, and linkages to exporters. TIPCEE initiated links between four lead exporters who engaged in activities with over 2,000 smallholders. Management systems introduced were tested and served as the basis for transfer to the rest of the pineapple, mango and papaya industries' nucleus operations.



Pineapples being packed for export to Europe.

At the industry level, TIPCEE, working with the Ghana Standards Board (GSB) and industry associations, promoted the adoption of industry norms for papaya, mango, pineapple, chilies, cashew, and Voacanga to meet market requirements. New product standards were disseminated to facilitate widespread understanding of quality requirements along the supply chain. Four appropriation workshops involving producers, traders, and exporters were conducted to ensure that standards are consistent with market expectations for three varieties of pineapple, two varieties of papaya, and Voacanga.

The cost of independent certification to meet EurepGAP standards is a major constraint for individual small farms. However, EurepGAP Option 2 enables well-structured farmer groups to apply for certification if they can demonstrate a functioning internal control system. TIPCEE is currently collaborating with MOFA and GTZ, the German Agency for Technical Cooperation, to help 10 pineapple farmer groups, representing 150 small individual farms, to implement Option 2, with the aim of scaling up to the industry's smallholder base of 1,500 farms employing more than 5,000 farmers. A private firm carried out a pilot inspection program of fresh pineapple exports on behalf

of Sea-freight Pineapple Exporters of Ghana, under the oversight of GSB. This innovative format ensures that shipments of pineapple are all tested and scored against a common standard, with the aim of ensuring uniform high quality.

IEHA Builds Larger-Scale Efforts to Tackle Hunger and Poverty: Helping Ghana to develop its MCC Compact in agriculture

The development of Ghana's proposal to the Millennium Challenge Corporation began in 2005 and culminated in the signing of a \$547-million Compact in the summer of 2006. The Compact contains projects in agriculture, rural development, and transportation. Much of the MCA-Ghana proposal concept mirrored the export development focus that had been developed by USAID for its Trade and Investment Program for Competitive Export Economy (TIPCEE) project. TIPCEE focuses on private sector competitiveness, with special emphasis on non-traditional agricultural exports and economic policy reform. The similarity of focus is no accident: the USAID IEHA advisor provided technical input into the analysis supporting the MCC proposal, helped to compare strategic options, and informed the development of specific components based on USAID's long and successful experience in these areas.

The USAID Mission had decided early on to engage with the teams developing the Compact proposal. Throughout the development of the proposal, USAID provided its on-the-ground IEHA advisor, who worked with the Mission's economic growth portfolio, to ensure that the proposal targeted poverty and hunger. The IEHA advisor also helped build a network of organizations and individuals to support the proposal development process, and ensured that the network delivered on its obligations, e.g., reviewing technical documents. Given the initial lack of donor coordination, he organized a timely series of meetings with both the Private Sector and the Agriculture donor groups for the MCA-Ghana team to present their draft proposal and solicit feedback. In addition, the IEHA advisor initiated dialogue between technical TIPCEE experts and the MCA-Ghana consultants.

Seeing the value of his involvement, the MCA team requested the USAID IEHA advisor to become even more involved, particularly in 1) directly reviewing draft technical analyses, 2) organizing and facilitating donor meetings to highlight technical issues related to aid harmonization, and 3) linking key IEHA-funded project activities with the proposal development process. With input from the IEHA technical advisor and from previously conducted USAID analyses, the MCA adopted a value chain approach, similar to the approach already underway at TIPCEE. By adopting a value chain approach, the MCA was able to draw upon USAID/Ghana's considerable experience in building commercially viable supply chains, ensuring export quality and standards, accessing regional and international markets, expanding acreage in appropriate regions, expanding the beneficiary base of small holders, and improving credit facilities and access for small holders and SMEs.

The IEHA advisor worked with the MCA team to lay the foundation for strategic analysis and the development of monitoring tools. The analytical capacity and skills built in this process will serve Ghana well when the Compact is implemented. Thus, the collaboration between USAID, Ghana, and the MCC was productive for all concerned. IEHA's programs and networks on the ground were crucial for gaining a credible understanding of priorities and what is feasible, while the MCC brought the power and influence necessary to take an IEHA agricultural investment success in Ghana to scale.

This success story is just one example of the alliances that IEHA is building to promote agricultural growth, increase rural incomes, and reduce hunger and poverty. The scaling up of USAID's successful program by the MCC is consistent with what African leaders have requested from their development partners.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN KENYA, FY 2006

FY 2006 IEHA Program Overview

The USAID/Kenya program aims at increasing household incomes for rural smallholder farmers of such commodities as maize, dairy, horticulture, and fish through enhanced agricultural productivity and access to



Kenyan Farmers using improved seed varieties

trade and markets. The program uses IEHA and other resources to transfer improved technology, enhance trade and market systems, and strengthen agriculture-related institutions and community-based producer organizations. It uses Title II resources to promote agriculture and livestock production and marketing among vulnerable groups in order to transition them from dependency to development. The program trains farmers on dry-land farming and natural resource management, supports conflict resolution programs, provides water sources, trains communities in nutrition and maternal/child health, and constructs soil conservation and flood control structures.

The program is on track. Targets have been met or surpassed, including household income. Total household income in 2006 increased by 13 percent from the last survey figure in 2004; households targeted by USAID commodity programs had more income than non-targeted households; and the changes were due mainly to significant improvements in productivity and trade in targeted commodities. Although female headed households had lower incomes in absolute terms, their income rose more (19 percent) than did male-headed households (12 percent).

Major IEHA Program (plus Title II) outputs in FY 2006:

- More than 165,000 households benefited from agricultural interventions that increased and diversified food crop production and enhanced marketing opportunities and food security.
- Over 95 agriculture-related firms were helped to understand and adopt production and processing practices that will enable them to meet international market standards.
- Over 55,000 men and 23,500 women were trained in good agricultural production and marketing practices.
- More than 590 organizations (producers' organizations, water user associations, trade and business associations, and CBOs) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access needed business development services for members.
- Over 40 public-private partnerships were formed.
- 57 new technologies were transferred to producers, leading to improved production and marketing efficiencies.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

The Tegemeo household income survey shows that maize productivity was 15 bags per acre, up by 14 percent from 2004 as a result of USAID support of the Kenya Maize Development Program. Under the Kenya Horticulture Development program, productivity increased 35 percent for tomatoes and 11 percent

for potatoes. Tomato productivity increased from a mean of 1,526 kg/acre to 2,544, and potatoes from 1,560 kg/acre to 2,080. The household survey found that USAID-targeted household farmers had significantly higher productivity than other farmers, mainly because of increased use of improved agricultural techniques. Unfortunately, because of the prolonged drought in FY 2006, dairy productivity did not change significantly among most of the targeted farmers, though it declined by 2 percent among other farmers. However, targeted farmers who have aggressively taken up technologies promoted by the program achieved a 20% increase in milk yields. During the year, USAID programs collaborated with Kenya Agricultural Research Institute and private partners to extend technologies to farmers. A local firm introduced a fertilizer called "mavuno," a blend of a number of nutrients, sales of which increased from 500MT to over 6,000 MT in just two years. The firm is planning to invest in a 60,000 MT local fertilizer plant in 2007. Other key technologies are minimum tillage, organic compost, improved agronomic practices, starter solutions, fertilizers, improved seeds and planting materials, contours, crop rotation, liquid nitrogen refrigeration, artificial insemination services, Porta SCC milk testing kits, silage making, fodder establishment, milk cooling and processing plants, multiple ovulation and embryo transfer, biogas plants and Information and Communication Technology-based dairy feed formulation. The total number of technologies made available to smallholder farmers through USAID programs was 57; the target was 60.

To speed adoption of the new technologies, USAID intensified training, including on-site demonstrations; 79,120 farmers, 23,780 of them women, received productivity-related short term training. Over 59,000 dairy farmers adopted improved technologies, significantly above the target of 32,660. Under the Maize Development Program, about 326,470 ha were brought under new technology, up from 303,303 ha in FY 2005. The number of farmers who adopted improved technologies was up by 115,628, much higher than the FY 2006 target of 22,829.

The program uses a private sector development approach to help small-scale farmers integrate into the market economy. It links farmers with private service providers, including a significant number of women, through annual business fairs, where business deals are made possible. To date, the Kenya Business Development Services (KBDS) program has identified 1,006 private sector providers specializing in grafting, pruning, spraying, seedling and scion propagation, picking, and market linkage services, 300 of which have been developed during the reporting period.

Improved Policy Environment for Smallholder-Based Agriculture

In FY 2006 Tegemeo Institute undertook a number of activities in agricultural policy analysis and advocacy. It continued its assistance to the Agricultural Sector Coordination Unit (ASCU) in implementing the Strategy for Revitalizing Agriculture (SRA). It also assisted the ministries of agriculture, lands and natural resources to draft rules for implementing changes in coffee marketing proposed under the finance bill; the rules were gazetted in July 2006. The institute was part of an inter-ministerial/multi-sectoral task force working on a draft paper and a cabinet memo on agricultural value addition, requested by the National Economic and Social Council (NESC). It is also working with the Ministry of Livestock and Fisheries Development to prepare a draft dairy bill for discussion and enactment by parliament.

Other policy areas where Tegemeo was active were in preparation of the Ministerial Public Expenditure Review (MPER) for the Agriculture and Rural Development sector ministries; a draft National Food and Nutritional Security report for the Ministry of Agriculture that became the working document in formulation of the national strategy on food and nutrition security; and a review of the Cotton Act and introduction of the Cotton Development Authority, a farmer-driven organization, which was passed in July 2006. In May 2006 Tegemeo held a conference on agricultural services and inputs and their impacts on agricultural productivity that was attended by over 130 people. Findings of the conference have been used to set the agenda for ASCU technical working groups on inputs and financial services and extension and research.

Increased Agricultural Trade

USAID activities increase trade and competition in domestic, regional and international markets by promoting market information and standards and grades, including EurepGAP certification. It links smallholder producers with private exporters and processors and also helps them access the US market under the African Growth Opportunity Act through business-to-business linkages with U.S. exporters.

In FY 2006 KBDS linked 3,000 small-scale agricultural producers with commercial market firms through long-term supply contracts, bringing the total to over 15,000 farmers since the program began. The firms provide both markets for farm products and embedded business development services. Five exporters - East African Growers, Indu Firm, Kakuzi, Kenya Horticultural Exporters, and Sunripe Ltd - are participating in the avocado market linkage activity. For farmers directly participating in Kenya BDS linkage activities, the volume and value of avocado exports to the international market surged from 1,532 tons valued at US\$213,000 in FY 2005 to 1,982 tons worth US\$308,000. This excludes the processed crude oil exported mainly to South Africa. Founding of three crude avocado oil processing firms, stimulated by USAID interventions, has resulted in a substantial increase in the domestic trade for avocados. Because of a prolonged drought, the volume and value of purchases from smallholder avocado farmers primarily by local processors fell from 6,575 MT worth US\$365,306 in FY 2005 to 5,622 MT valued at US\$312,333 in FY 2006.

Collaboration between the USAID Kenya-supported Dairy Development program and the USAID/REDSO-funded RATES project has opened new market opportunities for small-scale dairy farmers and Kenyan dairy processors. Exports of dairy products to the rest of East Africa are rising steadily, from 750 tons valued at US\$714,285 in FY 2005 to 1,000 tons worth US\$1.4 million in FY06.

The USAID Trade Development Program implemented by the Export Promotion Council (EPC) has expanded Kenyan access to new markets in the U.S. through training and participation at U.S. trade fairs and exhibitions. In FY 2006 Kenyan firms participated at the Specialty Coffee Association of America (SCAA) Convention and met American buyers, learned the latest trends and developments in consumer tastes and preferences, and secured orders valued at \$6.2 million, with another \$1.1 million being negotiated. About 12 companies participated in a trade mission to Texas in April and negotiated orders worth over \$1 million, and while another group attended Sources International Trade Fair in Los Angeles and secured orders valued at \$190,184 with another 10 business deals being negotiated.

In the horticulture sector USAID works to link growers of fresh produce to export outlets through such activities as EurepGAP training and registration; exports have grown significantly. The volume and value of cashew nuts increased from US\$14 million in FY 2005 to US\$23 million in FY 2006, and of vegetables from US\$232 million to US\$238 million. Domestic trade as measured by the volume and value of purchases from smallholder producers of targeted commodities is growing fast; at 6.12 million tons valued at US\$ 1.227 billion, it was up from 4.6 million tons valued at US\$1.19 billion in FY 2005.

Impact highlights in FY 2006 include:

- Maize profitability (gross margin per hectare) was up 7%, and physical yield was up from 6.75 to 7.2 tons/ha; cashew profitability increased more than 50%, with yield up from 0.25 to 0.45 tons/ha; both crops greatly exceeded their targets for these indicators.
- Area under new technology was 669,000 hectares, dominated by maize at 630,000 ha, up from 303,000 ha in 2005; farmers adopting new technology numbered 224,000 for maize and 60,000 for milk.
- International trade in targeted commodities increased 6% to \$261 million; vegetable exports rose 2.6% to \$238 million; avocados were up 45% to \$308,000; cashew nuts, up 64% to \$23 million, accomplishments in all commodities were significantly above their targets.

- Smallholder sales of targeted commodities more than doubled to \$69 billion. Those of maize more than doubled to \$67 million; while horticultural crops were up 3% to \$1.2 billion.
- The number of assisted enterprises accessing business development services increased 50% to about 60,000, of which about 25% are woman-headed.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN MALI, FY 2006

FY 2006 IEHA Performance Overview

In FY 2006 the IEHA portfolio in Mali continued to address the six major pillars of IEHA, working to improve agricultural productivity through technology adaptation and transfer, agricultural trade and market systems,



Brahima Sogodogo, kneeling in a mango orchard, teaches proper harvesting techniques to fellow traders.

building the capacity of community-based producers and traders associations, and environmental management for agricultural and economic growth.

In FY 2006 USAID/Mali rehabilitated about 2,730 ha of land under irrigation to enhance agricultural productivity. These interventions increased yields of rice from 0.5 tons to 5.4 T/ ha in many target zones. Among technologies adopted were improved crop varieties, particularly Nerica rice varieties, and better soil, water management, and crop management techniques. In addition to training and input delivery assistance for producer associations, USAID/Mali, in collaboration with government and non-government institutions, offered assistance in drafting 18 local conventions related to natural resources management. It also gave assistance to 13 livestock feed-based enterprises

in the Bamako and Sikasso regions.

Gender considerations are integral to all program activities. The number of women who were trained and the number of women's organizations assisted were well over the planned targets for FY 2006.

Major IEHA Program achievements in FY 2006:

- More than 1,025,000 households (nearly three quarters of them considered vulnerable) benefited from agricultural interventions that increased and diversified food crop production and enhanced marketing opportunities and structural food security.
- 575 agriculture-related firms were helped to understand and adopt production and processing practices that will enable them to meet international market standards.
- Nearly 25,000 men and 8,000 women were trained in good agricultural production and marketing practices.
- More than 850 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organizations) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access business development services for members.
- Over 600 women's organizations were helped to acquire skills that will enable them to (a) diversify their livelihoods; (b) increase their access to and control of food and other resource; and (c) increase their incomes.
- Over 500 public-private partnerships were formed.
- More than 100 new technologies were transferred to producers, leading to improved production and marketing efficiencies.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

USAID's work in relation to the rice value chain focused on the trade of Malian grown rice in the domestic markets. The rice credit storage program (CSV), introduced in FY 2004, and was greatly expanded in FY 2006. The program enabled producers from the regions of Sikasso, Ségou, Mopti, Timbuktu, and Gao to store and market the rice when prices increased as market stocks decreased. The activity took full advantage of seasonal price fluctuations to improve small producer revenue and liquidity and increase the capacity of producer organizations to plan, manage, and finance operations. The project provided training to participating village associations in assessing the quality of rice for storage, storage management and control, and record keeping, and in calculating loan repayments and rice marketing periods. A jointly negotiated protocol agreement with the microfinance institutions facilitated this program. These agreements support 53 village associations (of which 15 were women-only), and represent 3,144 beneficiaries (2,478 men and 666 women) storing a total of 1,757 tons of rice and marketing 1,341 tons.

In FY 2006 a pilot project initiated for women commercial rice trader groups (Femmes Commerçantes) provided women with an opportunity to obtain credit, which allowed them to buy rice when market prices were low and resell when prices rose, ultimately increasing their profits. During the reporting period 6 women's groups representing 87 beneficiaries participated in the pilot. The groups were able to successfully sell 62 tons of rice worth 11,800,000 FCFA (US\$23,675), leaving them with a net profit of US\$2,258.

In the potato sector nearly 1.5 tons of potatoes were exported to markets in Togo, Cote d'Ivoire, Burkina Faso, and Ghana. Domestically, cooperatives sold 2,453 tons. Combined sales reached more than 1 billion FCFA (US\$2,053,300). Throughout the season, USAID facilitated producer groups with obtaining the inputs needed to increase production, and trader cooperatives to put Malian potatoes on domestic and sub-regional markets. Continued efforts to improve storage and conservation of potatoes will help traders take advantage of market possibilities when prices are high.

In FY 2006 with technical assistance from Trade Mali one exporter group, GIETEM, obtained EurepGAP certification and successfully exported 1,880 tons of certified mangoes by boat to Europe; it is anticipated that next year another 5 or more will receive certification as part of the on-going process. The total volume of mangoes exported reached a record-breaking 3,870 tons, 30 percent more than in 2005. Even though export by boat (2,330 tons) was still the main transport mode, Malian mangoes were also flown out by plane (1,340 tons) and transported by truck (200 tons) to new markets in the sub-region (Senegal and Mauritania). The total value of mangoes exported by 29 exporter groups in FY 2006 was nearly 2.9 million euros (US\$ 3.6 million). The focus on quality resulted in definition of standard specifications for export-quality mangoes that are now considered the reference point for the mango industry. These specifications were annexed to Inter-Ministerial Decree 440, prepared by USAID partners, which defines requirements for exporting fruits and vegetables.

Many small businesses in Mali have difficulty keeping accurate financial records, which limits their productivity and impedes business growth. Without proper accounting, businesses cannot properly track sales, collect on past due accounts, or give credit. USAID's Mali Finance project is giving small businesses tools to improve their accounting. One tool is ComptEx, a basic accounting package that helps businesses create earnings statements and balance sheets and monitor cash flow and accounts. Since 2003, Mali Finance has trained 64 people who own businesses in ComptEx.

There were also improvements to the institutional and political environment in FY 2006. A draft directive for biotechnology research is awaiting governmental approval. Specifications for norms and standards for export of commodities like mangoes were drawn up and adopted to better respond to the standards of export markets. Efforts to establish a new Investment Promotion Agency continued. Finally, new projects were initiated with the government of Mali to strengthen the seed system and introduce improved wheat genotypes.

Impact highlights in FY 2006 include:

- A total of 101 rice, mango and potato processors adopted new processing (post-harvest handling, packaging, storage and marketing) techniques, a 124% increase over 2005.
- A total of seven policies were advanced 18 steps towards implementation, four of which achieved approval in 2006: creation of a new investment promotion agency; reform of agricultural export rules; new national standards for exported mangoes; and creation of a microfinance promotion unit.
- Potato exports by assisted cooperatives to local and regional markets increased by 65% to \$748,000.
- The value of potato purchases from smallholders increased by almost 200% to \$554,000.
- The institutional capacity (PIVA score) of five assisted rice, mango and potato producer and traders associations increased by 46%.
- A total of \$4 million in credit was received by targeted beneficiaries, a 347% increase from 2005; 804 assisted enterprises gained access to business development services, a 27% increase from 2005.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN MOZAMBIQUE, FY 2006

FY 2006 IEHA Performance Overview

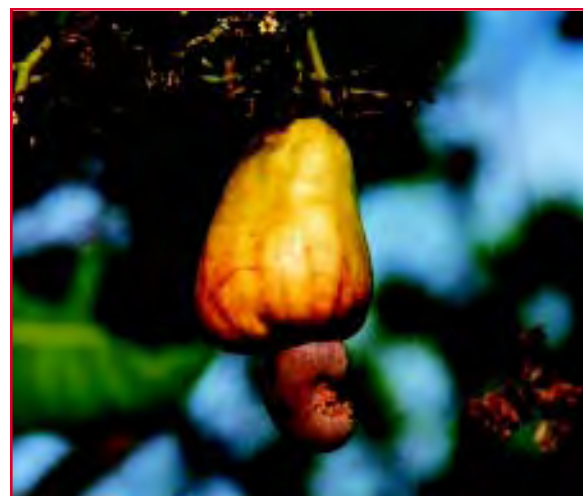
Despite strong economic growth, abundant natural resources, and a climate that supports agriculture year-round, Mozambique is one of the poorest countries in the world. Average per capita income was estimated at \$154 in 2000, and up to 78 percent of the population lives on less than \$2 a day. Life expectancy is less than 40 years; infant mortality is high. Nearly half of young children (48.5 percent) are thought to be malnourished, stunted, or wasted (2006, CARE survey).

To address this endemic poverty, USAID/Mozambique's Rural Incomes Growth Sustained program is working to make Mozambique's agricultural sector more productive and profitable. Because 80 percent of Mozambicans depend on agriculture for their livelihoods, increased productivity, marketing, and processing are critical to generating economic growth and thus address poverty, increase incomes, and enhance food security. In keeping with the IEHA, USAID/Mozambique is helping generate productivity-enhancing agricultural technologies and encourage farmers to adopt them. It also supports agriculture by developing marketing and post-production processing opportunities, and is helping the Government increase its capacity for economic analysis and policy making.

The Mission is also enhancing in-country capacity to collect and analyze information critical to preparing for natural disasters and monitoring impending threats, food insecurity, and vulnerability. With more than half the population living in poverty, household resilience to natural disasters is limited. Improving food security requires accurate systems for predicting impending threats and planning responses.

Major IEHA Program (plus Title II) achievements in FY 2006:

- More than 315,000 rural households, all vulnerable, benefited from agricultural interventions that increased and diversified food crop production and enhanced marketing opportunities and food security.
- Over 55 agriculture-related firms were helped to adopt production and processing practices that will enable them to meet international market standards.
- About 65,000 men and 54,000 women were trained in good agricultural production and marketing practices.
- More than 3,400 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organizations) were strengthened to (a) understand and contribute to good governance in their areas of concern; and (b) access business development services for members.
- Over 450 women's organizations were helped to acquire skills that will enable them to (a) diversify their livelihoods; (b) increase their access to and control of food and other resources; and (c) increase their incomes.
- 136 new technologies were transferred to producers, leading to improved production and



Mozambique – Cashew ready for harvest

marketing efficiencies.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

Mission supported research on crops and technologies has been raising smallholder productivity and income. Through the Title II programs, improved agricultural productivity has also reduced food insecurity. For example, average family household income in the World Vision project area rose from US\$284 in 2002 to US\$487 in 2006, and project participants had higher incomes (US\$492) than non-participants (US\$423). At the beginning of the program 70 percent of surveyed households experienced inadequate food availability for one or more months in the previous year; in 2006 the figure fell to 47 percent. Among households that experienced a food deficit, the average number of months of inadequate household food availability fell from 2.9 in 2002 to 2.2 in 2006. Average annual production of maize increased over the course of the project from 294 kg in 2002 to 533 kg in 2006, as did the average volume (MT) of crops that farmers shipped via improved roads: 1,146 MT in 2002 and 4,972 MT in 2006.

Africare designed its agricultural production program around community demonstrators-volunteers who teach new farming techniques through field schools and demonstration plots. They taught improved planting practices-planting in rows, intercropping, crop rotation, and tree planting; storage techniques; soil fertility and sustainable agriculture; and erosion control and controlled burning. Now, 70.5 percent of households in the project area use at least two improved planting practices, up from 38 percent in the baseline survey; 29.1 percent of households use erosion control, up from none; 84 percent knew crop storage techniques, up from 1.2 percent; and 43 percent use improved seed, up from 4.8 percent. The number of months of inadequate food was 3.2 in 2002 and 1.8 in 2006.

CARE demonstrated good adoption of improved agricultural practices, such as use of improved cowpea, maize, sesame, and groundnut seeds; use of improved crop planting; conservation farming, which increased maize and groundnut yields by 50 percent without fertilizer, techniques such as use of organic matter during planting, conserving rainfall directly around plants, and reducing soil erosion with mulch; and improved grain storage through the use of botanical pesticides, closed storage, and rat guards. CARE helped 1,903 farmers to get certified as organic growers; they produced 351 tons of organic peanuts and white sesame worth US\$229,640. However, the flea beetle devastated the sesame crop in the last season, with an estimated loss of 50 tons worth US\$30,000, and there is a need for research on measures to prevent such devastating losses.

Aflatoxin contamination is a major problem for international marketing of peanuts. CARE introduced a drying rack for peanuts that was adopted by 3,923 farmers. The peanuts were aflatoxin-free, and exports were made to the EU for the first time. CARE also made significant efforts to engage women. There are 415 women's groups with 7,455 members who produce sesame, sunflower, groundnuts, cowpeas, and vegetables for sale as certified seed, organic produce, or as a cash crop; they have formed marketing associations and savings and credit groups. The project also saw decreases in stunting (height-for-age Z-score < -2 standard deviation) among children younger than 5, from 59.2 percent at baseline to 48.5 percent at final. Interventions included promotion of enriched porridge for young children and the Hearth model for rehabilitation of malnourished children. The number of months of household food shortage decreased from 2.4 to 1.4 during the project and household dietary diversity increased from 2.97 to 3.55.

Food for the Hungry International's final evaluation of its Title II program ending in FY 2006 showed the average income of participant households, US\$521, was higher than that of non-participant households, US\$401. Months of adequate food stocks for households in the project area rose from 8 in 2002 to 10.4 in 2006 and in 2006 participants had more months of adequate food reserves than non-participants (9.8). More

participant households used improved seed, grew target crops, produced more maize and sorghum, and sold a greater number of basic food and cash crops, fruits, and vegetables than non-participant households; 82 percent of participant households adopted five or more improved agricultural practices.²⁵ FHI considers the main contributors to its success the practical demonstrations and field trials by farmers, a widespread extension network, good collaboration with the Government, linking buyers and producers, and facilitating inputs and market services. Challenges for the future are household vulnerability to drought, pests, and floods, and a further decrease in the months of inadequate food provisioning.

Improved Policy Environment for Smallholder-Based Agriculture

USAID/Mozambique contributed to an improved policy environment for smallholder-based agriculture in 2006 despite a more ambivalent political scenario. The long-standing relationship between Michigan State University (MSU) and the Ministry of Agriculture's Directorate of Economics was weakened by the hemorrhage of staff in the directorate, particularly the policy analysis department. Yet the MSU Food Security III project's national Agricultural Household Income Survey (known by its Portuguese acronym TIA) has proved invaluable. Surveys conducted in 1996, 2002, 2003, 2005, and 2006 provide a wealth of empirical data with which to chart the evolution of rural households. After years of investment, the TIA is now institutionalized within the Ministry and available to stakeholders in the sector. Although the data appear to be underused by analysts in the Ministry itself, the TIA is increasingly regarded as a reference point and demanded by donors and technical staff who monitor poverty reduction in Mozambique.

Thanks to Mozambique's generally liberalized trade policy, the framework for smallholder-based marketing is favorable for staple crops. The FEWSNET project tracked cross-border trade in Southern Africa; Mozambique was the largest exporter, with smallholders providing MT 66,518 of maize to Malawi between April and November 2006. Work under EMPRENDIA, USAID/Mozambique's Business Development Services Project, is helping build the poultry sector. By tackling constraints along the entire value chain, EMPRENDIA is revitalizing the animal feed industry, increasing demand for cereals, and providing smallholder producers of maize and cassava with additional market opportunities.

In 2006 USAID/Mozambique was able to address policy threats that could have hurt smallholder-based producers disproportionately. Working with the Confederation of Business Associations (CTA), USAID/Mozambique participated in an open debate to reformulate the labor law to make Mozambican businesses more competitive. Although ratification is pending, the law as currently drafted will continue to keep rural enterprises uncompetitive. With an artificially high wage and benefit package mandated, no value-adding agribusiness can survive. In addition to CTA member associations, the EMPRENDIA-assisted cashew processing industry association is active in the debate. Armed with production cost data, the industry members are able to prove that the draft legislation will inevitably cause their firms to close.

USAID/Mozambique helped avert, at least temporarily, a Central Bank directive limiting the use of foreign currency and control capital flight which would have prevented Mozambican importers and exporters from using standard tools of international trade finance, such as advance payment and wire transfers, for settlement. This directive has been postponed until a multiparty task force completes an assessment.

²⁵Key practices include recommended plant spacing, plant density, intercropping with legumes, planting in rows, use of animal manure, crop rotation, manual irrigation, food processing, use of organic pesticides and use of compost.

Increased Agricultural Trade

In FY 2006, the EMPRENDIA Alliance, consisting of Technoserve (lead), CLUSA, ACIDI/VOCA, and IITA helped generate over \$11 million, benefiting more than 120,000 smallholder farmers and rural enterprises:

- In the whole country, installed processing cashew capacity reached around about 42,000 tons a year, about 80 percent of it in processors directly assisted by EMPRENDIA. EMPRENDIA-assisted cashew processing has now grown to 11 factories, employing about 9,000 people and generating US\$8 million in revenues. With policy reforms mainly in minimum wage, and with stable financing, processors are willing to increase capacity by about 33,000 ton, providing work for another 1,000 workers.
- Sales proceeds from off-season vegetables were \$126,374 for the period, targeting not only local markets but also urban markets in Manica, Chimoio, Gondola, Dondo and Beira.
- During the report period 529 members sold 51.4 tons of sesame valued at \$22,722, primarily to Sunsmile Lda. Total sesame sales were US\$394,267. Associations marketed 420.5 tons of sesame (416 tons of grain and 4.6 tons of certified seed) for US\$282,526 (29 percent of their sales); the sales of IKURU, a producer-owned trading company, reached US\$111,741.

By the end of September IKURU had purchased 1,282 MT of agricultural products from its members, compared to 626 MT purchased last year—a 104 percent increase. Sales to date total \$433,137, an increase of about 65 percent over last year. With product in stock valued at \$445,900 (sale value), the 2006 sales outlook for IKURU look set to double over the previous year to well over US\$700,000. A profit of \$50,000 - \$60,000 is expected. IKURU benefits 8,000 smallholder farmer members in 43 associations. Its highlights include:

- About 90 tons of groundnuts were sold in a trial of the fair trade market. The associations were well organized and had help from IKURU.
- " 24 tons of certified sesame and groundnut seed were marketed by producer associations with IKURU partnership, bringing in US\$15,044 in sales - increased revenue for 115 producers.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN UGANDA, FY 2006

FY 2006 IEHA Performance Overview

The agricultural sector in Uganda is central to the country's economy and food security. The sector is the source of livelihood for over 70 percent of Uganda's population, most of whom live at subsistence level in rural areas. USAID agricultural programs address constraints along the entire commodity chain for crops with potential for significant increases in productivity that provide income for most rural households.

In the private sector, USAID programs strengthen producer organizations and link them with other market players, particularly exporters to regional and international markets. They also strengthen key sub-sectors by promoting industry-wide competitive clusters that bring together stakeholders in an industry to promote sector growth at the national level. USAID programs also strengthen agricultural input supply systems, and increase rural access to finance. USAID promotes savings mobilization and expansion of the financial services needed by producers and rural households. Since large segments of Uganda's rural population face food insecurity, especially in northern Uganda and in drought-prone areas, USAID works closely with PL480 Title II cooperating sponsors to promote food security and increase household revenue.



Uganda, processed rice, ready for shipment

Major IEHA Program (plus Title II) achievements in FY 2006:

- More than 280,000 households (over 168,154 of them vulnerable) benefited from agricultural interventions that increased and diversified food crop production, enhanced marketing opportunities, and food security. The average income for targeted households increased by 28 percent.
- 18 agriculture-related firms were helped to understand and adopt production and processing practices that will enable them to meet international market standards.
- About 182,000 men and 88,000 women were trained in good agricultural production and marketing practices.
- Over 1,650 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organizations) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access business development services for members.
- Over 65 women's organizations were helped to acquire skills so they can (a) diversify their livelihoods; (b) increase access to and control of food and other resource; and (c) increase incomes.
- More than 50 new technologies were transferred to producers, leading to improved production and marketing efficiencies.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

USAID supports sub-sectors like coffee, cotton, fisheries, dairy, floriculture, grains (maize, rice, and barley), oilseeds (sunflower and sesame), spices (vanilla and cardamom), and cooking bananas (East African Highland Bananas). Apart from the fisheries and dairy sub-sectors, the principal mechanism for support is the Agricultural Productivity Enhancement Program (APEP), which works to improve productivity through demonstration programs promoting improved seed, fertilizer, and agronomic practices. USAID also helps beneficiaries access financial support and market linkages. The goal is to move rural producers away from subsistence production into the market.

In FY 2006, USAID APEP worked closely with the cotton industry to generate technologies and technology transfer models that apply to the industry as a whole. It partnered with each ginnery in the country through eight lead ginners. In the 2005/06 cotton season, 6,902 demonstration sites (6,810 directly supported by USAID APEP and 92 exclusively supported by a private cotton buying company) were established in the eight cotton production zones in Uganda. These exposed 134,458 farmers (38,992 females) to improved production management practices. However, because planting was late and the rains stopped early, cotton production declined.

In the area of coffee, APEP focused on setting up demonstration sites, training farmers on quality improvement and improved agronomic practices, linking farmers and enterprise, and building partnership with local government authorities, research organizations, academic institutions, and the private sector. APEP worked closely with Uganda Coffee Development Association (UCDA) district staff, local agricultural extension staff and extension staff of the private exporters. It reached 44,023 coffee producers, 11,213 of them female. Coffee prices strengthened in part due to improved marketing and better quality.

The APEP collaborative effort in upland rice continued to increase the number farmers exposed to technologies, as well as increase the quality and amount of milled rice channeled through small- and medium-scale millers. These improvements have brought increased investments in rice milling; investment totals \$2.9 million since the inception of APEP. APEP again worked with partners involved to promote the use of Nerica varieties. In FY 2006, 1,748 demonstration sites (each between 1/2 -1 acre) were established and 31,700 farmers (14,674 females) were exposed to new upland rice production techniques. USAID APEP-linked rice processing companies purchased US\$4,600,000 of paddy rice from APEP-supported farmers.

With Strategic Activities Fund (SAF) support from USAID APEP, the Uganda Flower Exporters Association (UFEA) continued its training and market promotion activities. APEP also focused on the issues of quality assurance, standards and certification - all but one UFEA member are registered for Milieu Project Sierteelt inspections. This year the industry placed an additional 32.2 ha under greenhouse and employed about 7,000 people, at least 60 percent of them female. The volume of flowers exported reached 7,596 tons valued at US\$34.72 million - a 4 percent increase in volume and 6 percent increase in value over 2004/05. The first trial shipment to Miami (USA) left Uganda early in February 2006 and the exports continued, though flower prices were under pressure in the Netherlands auctions, and costs increased due to higher airfreight and electricity rates and use of standby generators.

The APEP continued collaboration with A.K. Oils and Fats (U) Ltd. The Lira, Apac, and Masindi districts registered 31,291 farmers (13,358 females) in an outgrower scheme (OGS). Collaborating farmers were exposed to improved production practices through 850 technology transfer sites in the operation areas. A.K. Oils and Fats (U) Ltd. sold about 86,000 kg of hybrid sunflower seed to the outgrowers and procured 15,135 MT of sunflower grains; total net income of registered farmers was \$1.14 million.

The USAID/Uganda's program recognizes that biotechnology can address biotic threats to the East African Highland Banana (an important subsistence crop) and accelerate economic growth by increasing agricultural productivity, reducing the use of pesticides and herbicides, and increasing the use of soil-conserving minimum tillage techniques. Through a Leader-with-Associate Award with the Agricultural Biotechnology Support Program - ABS P II, the Mission is supporting biotechnology research in key crops, in particular cooking bananas (a major food staple in Uganda) and cotton.

USAID's three-year Fisheries Investment for Sustainable Harvest (FISH) program aims to improve productivity and profitability. It creates model fish farms for farmer-to-farmer technology transfer, and is now focusing on viable commercial production of Nile tilapia and clarias catfish. The program has been enthusiastically received by the Government of Uganda and other fisheries sector stakeholders. Because demonstration farms are at the core of FISH and are where best practices can be introduced, considerable effort has been invested in them. FISH selected 10 farms as demonstration sites for either hatchery or pond-based production and set up cages at Jinja and Entebbe in Lake Victoria for trials and demonstrations. The demonstration sites are used for farmer-to-farmer training in new techniques. Project staff conducted almost 2,000 person-days of training, mostly on pond construction, record-keeping, fish harvesting and handling, and fish feeding; 180 aquaculture practitioners were trained. As a result, fish production rose from 200 kg in 2005 to over 50,000 kg in 2006 and is expected to rise in coming years.

The dairy sector program was completed at the end of FY 2006. Over its life, annual consumption of milk increased from 17.2 million liters to 31.4 million; four processors met national and international quality standards; the volume of milk entering cold storage/bulking systems increased from 17,670l/day to 107,634l/day; and average on-farm productivity increased with some farmers recording up to 15l/day/cow. The activity worked through farmer organizations; the number of producer groups engaged in collective marketing increased from 6 to 19 with a total membership of 7,617 farmers. As a result of dairy activities, average annual household incomes increased from \$55 to \$699 per year in Eastern Uganda, from \$376 to \$993 in Central Uganda, and from \$40 to \$1,589 per year in Western Uganda.

Food security is a serious problem, particularly in northern Uganda where civil strife has pushed 95 percent of the population into camps. Title II non-Emergency Food Aid, valued at some \$12 million in 2006, supported food security programs that benefited about 120,000 households throughout Uganda. Programs deal with water and sanitation, nutrition, agronomy, farming as a business, post-harvest handling and marketing, and rural road construction. Currently, 65,641 people receive Title II rations. Rehabilitation of 133.5 km of feeder roads has increased market access for rural communities. Training on household nutrition and hygiene was provided to 4,298 poor rural families.

Improve Policy Environment for Smallholder-Based Agriculture

The USAID Strengthening the Competitiveness of Private Enterprise (SCOPE) Program was completed in FY 2006. SCOPE worked with clusters in the coffee, cotton, fish, grains, oilseeds, horticulture, tourism, and floriculture sectors, facilitating vital dialogue on competitiveness issues. By engaging business leaders and sector associations, SCOPE facilitated the development of national business plans/strategies in coffee, cotton, fish, tourism, and floriculture. In the area of policy and regulatory reforms, SCOPE facilitated sector-based tax clinics for coffee, horticulture, and fisheries. In collaboration with development partners, it also fostered the national brand, "Uganda: Gifted by Nature," which provides a platform for the much-needed recognition of Ugandan products and services in the global market place.

Through a Leader-with-Associate Award with the Program for Biosafety Systems (PBS), USAID is supporting the drafting of biosafety regulations to facilitate and control the introduction of biotechnology into Uganda. It made a special effort to build capacity for conducting confined field trials (CFT) of genetically modified crops.

Members of the National Biosafety Committee (NBC) and the NARO Institutional Biosafety Committee were trained on how to assess applications for introduction of transgenic plants for research purpose under CFT conditions. Scientists identified as potential applicants for CFT were trained in field trial design and in completing CFT applications for transgenic plants. A national biosafety policy has been stalled due to national elections and significant parliament turnover.

A second component of USAID/Uganda's Private Sector Competitiveness program is increasing access to financial services in rural communities by promoting agriculture and non-agriculture finance, and savings mobilization. This effort also provides support for banks and microfinance deposit-taking institutions (MDIs), microfinance institutions (MFIs), and savings and credit cooperatives (SACCOs), giving special attention to increasing linkages between all the groups. Rural SPEED (Rural Savings Promotion and Enhancement of Enterprise Development) is implementing this component. Through a broad-based savings mobilization campaign using posters, taglines, radio, skits, and a road show in East, Central and Western Uganda, Rural SPEED partner institutions recorded unprecedented increases in savings deposits. Ten partner SACCOs increased the average value of their savings by 32 percent over the past 12 months. Rural SPEED also supported introduction of point of sales (POS) devices, expanding new rural financial services delivery points from 0 to 40 with implementing partners (Commercial Microfinance Ltd) and introduced low-cost rural access without the traditional brick and mortar. Another partner, Uganda Microfinance Ltd. (UML), launched a micro-lease product in July with projections of 100 leases valued at \$167,600 to be disbursed. The number of new borrowers increased from 5,956 in FY 2005 to 32,839 in FY 2006. Of these loans, valued at \$19,531,932, 60 percent went to agriculture.

A warehouse receipts system for small farmers is functioning with Kapchorwa Commercial Farmers Association (KACOFA); farmers received \$123,333 trade finance through loans from Stanbic against maize deposited in the Kapchorwa warehouse. The deal was negotiated with the World Food Program (WFP), USAID/APEP and Rural SPEED, and COTECNA, an international collateral management manager. Through this deal, KACOFA was able to get a lease for 10 maize shellers, a 20MT maize dryer, a 2,000MT maize supply contract with WFP, and a line of credit of \$1m with Stanbic.

Impact highlights in FY 2006 include:

- The area under new technology was 159,000 hectares (primarily in cotton, maize, and rice) against the target of 66,000 ha; the number of farmers adopting new technology was 193,000 (primarily in cotton, sunflower and rice), exceeding the target of 159,000.
- Of eight major policies under improvement, three reached the approval stage: Zero VAT on handling services at Entebbe Airport for the export of fresh produce; import duty and VAT on gunny sacks used for coffee and other exports; and the reduction of proposed levy on fish catch and exports. Five policy improvement processes made progress during FY 2006.
- International trade in targeted commodities increased 45% to \$20.3 million, including coffee at \$5.4 million, cotton at \$8.5 million, vanilla at \$5.5 million, and maize at \$877,000; accomplishment in all crops was substantially above targets.
- National* exports of maize into regional markets increased 53% to \$17.6 million; the target of 80,000 tons was surpassed and reached 117,000 tons.
- Sales by assisted smallholders of targeted commodities rose over 45% to \$22 million, led by coffee (up from \$1.1 to \$5.4 million), sunflower (up 59% to 2.9 million) and vanilla (up 72% to 5.5 million); accomplishment in all crops including cotton exceeded the FY 2006 target substantially.**

* These are not only the sales by assisted beneficiaries but the total exports of the country.

** The Mission also reported under gross margin indicator (but not in purchases from smallholders indicator) smallholder sales of rice totaling \$11.5.

INITIATIVE TO END HUNGER IN AFRICA PERFORMANCE OF IEHA ACTIVITIES IN WESTERN AFRICA, FY 2006

FY 2006 IEHA Performance Overview

USAID/West Africa (WA) works with organizations with a regional mandate to improve coordination and sharing of information, harmonize agricultural policies, and facilitate rational cross-border movement of goods and services. Among these organizations are the West and Central African Council for Agricultural Research and Development (CORAF/WECARD), the International Agricultural Research Centers (IARCs), the Permanent Interstate Committee for the Control of Drought in the Sahel (CILSS), and the Economic Community of West African States (ECOWAS). USAID/WA is also working with more private sector partners, especially in agribusiness development, trade, and the development of global alliances that leverage resources and knowledge from the private sector, donors, and other partners.

Major IEHA Program achievements in FY 2006:

- Nearly 250 agriculture-related firms were helped to adopt improved agricultural production and processing practices that will enable them to meet regional and international market standards.
- Over 2,900 men and nearly 800 women were trained in modern agricultural production and marketing practices.
- Over 460 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organizations) were strengthened to (a) understand and contribute to good governance in their areas of concern; and (b) access business development services for members.
- Nearly 25 women's organizations were helped to acquire skills that will enable them to (a) diversify their livelihood activities; (b) increase their access to and control of food and other resources; and (c) increase their incomes.
- More than 35 public-private partnerships were formed and about \$11.9 million leveraged from other donors and organizations. These partnerships range from seed production organizations and research coordination initiatives to an innovative alliance with Kraft Foods Corp. to promote production of certified cocoa in Côte d'Ivoire using a sustainable and environmentally friendly system.
- Nearly 45 new technologies were transferred to producers, leading to improved production and marketing efficiencies.
- The value of intraregional trade monitored for 13 trade associations amounted to \$169 million, a 17 percent increase over the 2005 target.



Exchange of ideas in NERCIA plot - Mali

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

USAID/WA supports three commodity research networks coordinated by CORAF and three Consultative Group Centers on International Agricultural Research: The maize network (WECAMAN) is led by the International Institute of Tropical Agriculture (IITA), the sorghum and millet network by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and the rice network by the Africa Rice

Center (WARDA). The program worked with 141 new partner institutions, made 42 technologies available for transfer, trained 3,687 nationals (2,908 males and 779 females), and facilitated production of 374 MT of commercial improved maize and sorghum seed. The demand for seed of the new rice for Africa (NERICA) and the Quality Protein Maize (QPM) was much higher than the available seed. In Burkina Faso, an 87-member water users association with 36 women obtained average rice yields (including NERICA) of 4 ton/ha due to the adoption of good soil and water management practices and to training conducted jointly by the rice network and the Burkina Faso national research institute. Integrated practices for combating Striga, a parasitic weed causing significant yield losses in cereals, were disseminated in Benin, Burkina Faso, Mali, Niger and Nigeria. The rice network released six lowland varieties of NERICAs in Burkina Faso and Mali.

The Institut du Sahel (INSAH) helped more than 1,500 farmers in Senegal, Burkina Faso, and Niger access improved storage methods for cowpeas, new types of animal feeds, composting, and short-duration crop variety technologies. INSAH also trained farmers in financial management and planning.

The World Vegetable Center (AVRDC)-led vegetable promotion activity is evaluating vegetables (cabbages, peppers, tomatoes, and okra) for adaptability to heat and rainy season conditions; four each of open-pollinated tomato, hot pepper, and okra show promise. In Benin, the open-pollinated hot pepper variety produced 20 ton/ha, quadrupling average yield of local varieties. Four women and six men were trained in vegetable seed production.

In addition to disseminating improved tomato varieties, the Agricultural Biotechnology Support Program (ABSPII), in collaboration with Universities of California Davis and Cornell, began to engineer a tomato resistant to both gemini-viruses and poly-viruses. The project uses an integrated management approach to strengthen regional capacity for disease diagnostics and biotechnology capabilities and is introducing new technologies to improve tomato production, including drip irrigation. A handbook of tomato cultivation practices is being prepared and will be distributed along with seeds of improved varieties of vegetables.

The Marketing-Processing Project led by the International Sorghum and Millet Collaborative Research Support Program (INTSORMIL) promotes the adoption of improved sorghum and millet productivity technologies to meet the needs of food and feed sectors. The project works with food and feed processors to introduce quality product technologies, marketing strategies, and inventory credit or "warrantage" systems. A workshop brought together food processors, 31 food scientists from the region, the United States, and South Africa, and project implementers to discuss such food industry priorities as the importance of processors paying a price premium for uniform, clean grain and estimation of the value of quality to processors. This in turn has increased the supply of clean millet and sorghum grain, allowing the food industry to process products like steamed millet in yoghurt, couscous, arraw, degue, sankal, and thiackri. Farmers adopting the improved agronomic package comprising mainly fertilizer and cultural practices consistently obtain 2.0 -2.5 ton/ha in sorghum compared to less than 1 ton/ha under the traditional practices.

During the latter part of the year, USAID/WA signed an agreement to support a new public-private alliance for market-oriented production of certified cocoa using sustainable environmental-friendly production in Côte d'Ivoire under the Rainforest Alliance (RA) certification process. Kraft will buy the certified cocoa at a premium price. In 2006, farmers were trained in the entire range of RA standards, including plant husbandry.

Improved Policy Environment for Smallholder Agriculture

USAID/WA programs have assisted 461 organizations, including producer, water, and trade associations, to be more effective in service delivery. Strengthening these groups helps improve their negotiating skills, collective bargaining power, coordination of input supplies, and access to credit and related services.

USAID funds supported CORAF/WECARD in helping coordinate the agricultural research and development agenda for West and Central Africa. The 2006 support helped initiate the African Union's New Partnership for Africa's Development (NEPAD) Comprehensive Africa Agriculture Development Programme (CAADP) activities for West and Central Africa, comprising the West Africa Agricultural Productivity Program and the Central Africa Agricultural Productivity Program. The International Food Policy Research Institute (IFPRI) led a quantitative economic and geographic information systems analysis to determine research priorities for achieving the CAADP target of 6 percent annual rate of growth in agriculture. Other achievements include:

- Launching the Integrated Agricultural Research for Development in the Kano/Katsina/Maradi pilot site in Nigeria and Niger; productivity constraints were validated through a consultative process with local communities; three projects are to be implemented after a competitive process.
- Establishing an online platform for sharing agricultural technologies and related information among NARS and other professionals to improve knowledge in science and technology.
- Launching a Natural Resources Management (NRM) assessment to demonstrate the impact of investments in NRM in the West and Central Sahel areas; the major recommendation was to include socioeconomic issues.

USAID funds supported CILSS in addressing food insecurity in West Africa, particularly in the context of CAADP Pillar 3 on increasing food supply and reducing hunger. INSAH developed a regional approach to seed regulation in the nine CILSS countries with the collaboration of national stakeholders and other regional and international organizations. CILSS Council of Agriculture Ministers approved this approach and it will be submitted to member countries for adoption. CILSS continued to strengthen its early warning food security system, drafted national environmental action plans, and collaborated with ECOWAS on implementing the West Africa Agriculture Policy (ECOWAP).

INSAH and Michigan State University developed an online data portal that now contains all of INSAH's 703 publications and databases related to agricultural development, environmental and resource management, and demographics and health. Documents are now easily searchable and can be accessed in a variety of configurations. Training and workshops on these improved changes involving the Internet have helped strengthen West Africa's capacity to formulate and implement policy while improving communication between researchers, policy analysts, and those in the public and private sectors. Follow-on activities are planned to demonstrate the potential of the Internet:

- CILSS will improve its website and AGRHYMET will put all its documents and data bases online, with links to the INSAH system; a new database of about 3,000 documents is being built for monitoring and evaluating CILSS projects.
- The Réseau des Organisations Paysannes et des Producteurs Agricoles de l'Afrique de l'Ouest (ROPPA) asked INSAH to introduce the web site to its members, pointing out information on it that responds to ROPPA's mission and helping them access other pertinent resources.

Increased Agricultural Trade

USAID/WA's two-year flagship agricultural trade project on Market Information Systems and Traders Organization in West Africa (MISTOWA) aims to improve the region's efforts to generate, disseminate, and make commercial use of market information. The project is addressing impediments to trade, including lack of access to timely information on prices and market opportunities; inadequate business skills of producers and traders; and unfavorable trading environments. The project works with 90 organizations and about 500 producer and trader associations on nine agricultural commodities (maize, rice, cassava, cattle, tomato, onion, cashew, shea, and fertilizer) in Benin, Burkina Faso, Mali, Ghana, Nigeria, Senegal, Guinea, Cote d'Ivoire, Niger, and Togo. Key activities in 2006 focused on:

- **Improving Private Sector Competitiveness:** MISTOWA trained 120 leaders of producer and trader organizations (including 35 women) to advocate for improvements in the West Africa trade environment. Information, communications and telecommunications (ICT) training was organized for 220 producer and trader organization members.
- **Increasing Trade and Investment:** About 20 producers and traders from nine countries participated in trade fairs, resulting in reasonable sales and establishment of long-term business relationships.

MISTOWA's interventions benefited 188 agriculture-related firms and 308 producer organizations, trade and business associations, including seed companies and other input suppliers, and public sector agricultural market information systems providers. The project also monitored the value of intraregional trade for 13 trade associations amounting to \$169 million, a 17 percent increase over the 2005 target.

Additional IEHA Achievements in FY 2006 include:

- Approval of a regional biosafety regulation and standards framework on conventional and transgenic seeds.
- Setting up 128 MISTOWA Agri-Business Information Points in 10 countries and monitoring the value of intraregional trade for 13 supported trade associations, amounting to \$169 million.
- 12 cross-border transactions worth \$2,138,586 from commitments made during the Crop Outlook conference held in Burkina Faso.
- For members of the West African Food Industry Economic Operators Network (ROESAO) network, coordinating the supply of sheep and cattle from Burkina Faso, Mali, Niger and Mauritania for markets in Abidjan, Côte d'Ivoire, and Dakar, Senegal for the Eid-Il-Fitr (Tabaski), resulting in over \$17 million revenue.
- MISTOWA support for two associations from Niger to participate in the international agricultural trade fair in Senegal that brought in about \$76,000 in revenue; and organizing a trade event for transporters that resulted in 59 offers to sell and 30 bids to buy, valued at about \$2.5 million.
- Increased use of the Tradenet platform (www.tradenet.biz) to post, receive and share prices, offers and market information; 70 MT of cashews were sold, accessing more than 380 West African markets.
- The signing by the Ghana Agricultural Producers and Traders Organization (GAPTO) of a trade agreement with the Institut Syndical pour la Coopération au Développement (ISCOS) and MALI YIRIDEN in Mali to supply Irish potatoes from Mali, resulting in about \$30,000 revenue;
- Expansion of the most efficient drip irrigation technology to Northern Ghana for year-round vegetable and fruit production.
- Production of about 374 MT of improved commercial maize and coarse grains for many countries, some outside West Africa.

Impact highlights in FY 2006 include:

- The institutional capacity (PIVA score) of CORAF for regional technology development and dissemination increased by 10%.
- Three policies were advanced a total of seven steps: an Agricultural Policy of the West African Economic Community is now at the implementation stage; for the CILSS countries, common biosafety regulations and common regulations for conventional and transgenic seeds were passed.
- The institutional capacity (PIVA score) of CILSS for policy formulation increased by 40%.

" Regional trade in targeted commodities increased 27% to \$351.6 million; fertilizer exports rose 27% to \$189.4 million; cattle exports, by 17% to \$119.8 million; maize exports, by 114% to \$12.8 million; and rice exports, by 1262% to \$15.9 million; accomplishments in all commodities were significantly above their targets.

INITIATIVE TO END HUNGER IN AFRICA: PERFORMANCE OF IEHA ACTIVITIES IN ZAMBIA, FY 2006

FY 2006 IEHA Performance Overview

USAID Zambia uses IEHA resources to increase private sector competitiveness in agriculture and natural resources management. The focus areas are (a) access to markets for producers; (b) expanded use of value-added technologies by enterprises; (c) access to finance and business development services; and (d) creating an enabling environment for growth. After a slow start in FY 2005, activity increased significantly in FY 2006 in the key programs: PROFIT (Production, Finance, and Improved Technology); MATEP (Market Access, Trade and Enabling Policies); Michigan State University's Food Security Research Project (MSU-FSRP); and the Agricultural Consultative Forum (ACF).

Major IEHA Program achievements in FY 2006:

- More than 19,700 households benefited from agricultural interventions that increased and diversified food crop production and enhanced marketing opportunities and food security.
- Over 15 agriculture-related firms were helped to adopt production and processing practices that will enable them to meet international market standards.
- About 11,000 men and 5,000 women were trained in good agricultural production and marketing practices, and were introduced to a broad range of topics including market analyses and development, record keeping, crop quality control, post-harvest handling, product grading, and aggregation of commodities, among others.
- 8 organizations (producers' organizations, water user associations, trade and business associations, and capacity building organization) were strengthened to (a) understand and contribute to good governance in matters affecting their operations; and (b) access needed business development services for members.
- 6 new technologies were transferred to producers, leading to production and marketing efficiencies. Technologies promoted included Conservation Farming, improved honey production, improved herd health management techniques; improved seed variety and breeds; tillage and spraying.

FY 2006 IEHA Performance

Enhanced Productivity of Smallholder-Based Agriculture

At the institutional level, MSU-FSRP made contributions to inform the discussion on measures that can be taken by government to increase farm productivity, mostly in the form of economic analysis of agricultural input use and conservation farming technologies. MSU-FSRP stimulated technical and policy dialogue on cassava production and marketing, adoption of conservation farming technologies, and public spending on productivity-enhancing investments in the agricultural sector.



Picking peppers for Tabasco



Sorting peppers



Ready for mashing and onward shipment to Louisiana

CLUSA's Production, Finance and Improved Technology project helped a total of 21,049 smallholder farmers to invest in improved technologies, such as conservation farming and small-scale irrigation, improved herd management and health, and improved honey production. A total of 18,534 smallholder farmers and SMEs were helped to access value-chain finance amounting to \$627,315. Aggregate sales by smallholders of targeted commodities (cotton, paprika, maize, coffee, cassava, livestock, horticulture, and honey) amounted to \$3.75 million in FY 2006, exceeding the goal by 94 percent.

Improved Policy Environment for Smallholder-Based Agriculture

The USAID Mission is now one of three lead donors in the agricultural sector (together with Sweden and the World Bank) and has engaged in policy dialogue with the Zambian government. The Mission has also been active in preparations for the launch of the Comprehensive Africa Agriculture Development Programme (CAADP) in Zambia, in close consultation with other donors and the Common Market for Eastern and Southern Africa (COMESA).

MSU-FSRP made significant contributions to agricultural policy design and implementation. It helped the Ministry of Agriculture and Cooperatives (MACO) to begin implementing the Agricultural Marketing Development Plan (AMDP) by facilitating the drafting of new legislation while the Agricultural Input Markets Plan (AIM Plan) was finalized. Both plans embody private sector development in food and inputs markets and aim to translate policy design into implementation. Complementing this process, budget analysis and subsequent policy discussions were directed to improving government allocation of resources to the agricultural sector. Analytical assistance was provided to the Zambia National Farmers Union to influence a new government tax regime and inform the discussion about the effects of the appreciation of the local currency on the agricultural sector.

MATEP addressed administrative procedures for export, working with the Ministry of Agriculture and Cooperatives and the Zambia Revenue Authority and Customs. Other trade barriers being addressed are sanitary and phytosanitary issues and rules of origin.

Institutional capacity-building took the form of analytical skills training and collaborative policy analysis and dialogue. Institutions assisted included the Ministry of Agriculture and Cooperatives, the Ministry of Commerce, Trade and Industry, and the Central Statistical Office.

Increased Agricultural Trade

USAID interventions in policy and trade continued to help Zambia increase exports and encourage national and regional agricultural trade. MSU-FSRP and MATEP facilitated and informed regional and national maize trade policy discussions. The value of MATEP's export and tourism transactions helped firms reach \$13.6 million, exceeding the target of \$6.8 million by 100 percent. Among MATEP's significant achievements was its technical assistance to two seed producers, which resulted in contracts worth over \$500,000. The national aggregate of nontraditional exports (NTEs) in FY06 alone was \$168 million, exceeding the annual target of \$145 million by 16 percent. In the region, South Africa continues to be Zambia's main market for NTEs, claiming 40-43 percent of market share. Products exported to South Africa include cotton lint/yarn, fresh flowers, coffee, sugar, and groundnuts. The Democratic Republic of the Congo continues to be Zambia's second largest market.

In FY 2006, despite stiff competition for deposits from the government purchase arrangements of the Food Reserve Agent, the Warehouse Receipt System achieved some significant results, indicating that the potential for the system to succeed is enormous if government's role in the market is reduced and rationalized.

The capacity of the facility's certified warehouse is 105,000 tons and may be increased to 200,000 tons in 2007. As of September 2006, some 19,879 metric tons of maize were on deposit, 12,300 deposited by smallholder farmers and 7,579 by commercial farmers and traders. Commercial farmers and traders borrowed a total of \$909,480 against warehouse receipts. The program has been able to stimulate commercial bank lending against certified warehouse receipts that are issued to farmers, traders, millers, and other depositors of grain. The receipts serve as collateral for credit that can be used to increase working capital, thus providing market liquidity and increasing trading capacity. Four of the largest banks in Zambia are participating in the DCA facility (\$16.5 million). In addition to financial leveraging, the warehouse receipt system also offers a price discovery mechanism and promotes the use of commodity grades and standards.

IEHA impact highlights in FY 2006 include:

- The number of farmers adopting new techniques increased by 176% from 7,477 in FY 2005 to 20,600 in FY 2006.
- Three agricultural policies were advanced a total of seven steps: a bill for the removal of VAT on agricultural inputs was passed; an agricultural market development plan was approved; and an agricultural inputs marketing plan advanced to the dialogue stage.
- International trade in targeted commodities was \$38 million: vegetable exports were \$20.1 million, coffee exports were \$12.9 million, beef exports \$2.5 million, maize seed \$1.5 million, with honey, paprika, chillies and cotton exports also reported.
- Smallholder sales of targeted commodities reached \$26.8 million exceeding the target of 16.7 million by 60% dominated by cotton (\$19.8 million), honey (\$4.0 million), beef (\$1.5 million) and vegetables (\$1.4million).
- The number of assisted enterprises accessing business development services increased 29% to about 18,800, of which about 36% are woman-headed. The value of credit received by project clients increased by 18% to \$831,000, of which about 43% went to females.

ANNEX 3: AGRICULTURAL GROWTH, VULNERABILITY REDUCTION, AND PUBLIC INVESTMENT OPTIONS IN SUB-SAHARAN AFRICA²⁶

The international community has set an ambitious goal of halving the proportion of poor by 2015. However, there are problems with this goal. Many poor may move out poverty in a good year, but fall into it again next year. The pool of poor is not fixed and changes over time. The number of poor increases with the inclusion of those who move in and out of poverty across years. Therefore, it is also important to design policies and interventions to address these special vulnerable groups of population.

The majority of the population in Sub-Saharan Africa (SSA) lives in rural areas and relies on agriculture as a source of livelihood. They account for the largest share of vulnerable and poor populations in most African countries due to the risky nature of agriculture. The critical policy question is what interventions, instruments or strategies can reach the largest number of vulnerable and poor. In this note, we argue that in economies where the majority of poor and vulnerable live in rural areas and rely on agriculture, promoting agricultural and rural growth is still the most effective instrument. But equally important are the patterns of agricultural growth, that is, the sub-sector composition (e.g., cash vs. staple crops, livestock vs. grains), regional orientation, and size of landholding. Broad based interventions or strategy cannot reach all poor and vulnerable. Instruments at the micro level such as asset-based social safety nets are also important and can play an important supplemental role. The key is to maintain the right balance between productive investment to generate long run growth and social spending to buffer short-run risks. This has important implications as governments and international development agencies spend limited resources while trying to help the largest number of vulnerable and poor out of poverty in both the long and short run.

The remainder of the note is organized as follows: The second section discusses the concept of vulnerability. In addition to defining vulnerability, it examines who are vulnerable, their location and some of the reasons underlying their vulnerability. The third section examines how different patterns of agricultural growth affect vulnerability. The fourth discusses public investment and spending options while the fifth section concludes.

VULNERABILITY

The meaning of "vulnerability" differs across the various literatures (Alwang, Siegel and Jorgensen, 2001). In development, it is generally used relative to poverty. Vulnerability is the ex ante risk that non-poor households will fall below the poverty line and that poor households will remain poor (Tesliuc and Lindert, 2002 citing Holzmann, 2001). Vulnerability differs from poverty in that the latter is an ex post measure of welfare. Defining vulnerability relative to both current and potential future poverty is important from a policy perspective insofar as poverty is a stochastic phenomenon (Chaudhuri, 2003). That is, even if poverty rates stay the same, the poor of today may not be the poor of tomorrow and, conversely, the non-poor today may be the poor of tomorrow. The framework developed by Holzmann and Jørgensen (2000 and the 2000/2001

²⁶Prepared by Marc Rockmore and Xiaobo Zhang of IFPRI. The authors have benefited from useful comments and discussion from Todd Benson, Andrew Dillon, John Hoddinott and Shenggen Fan.

World Development Report (WDR) moved the vulnerability debate beyond "safety nets" to considering how vulnerability can be reduced through ex ante interventions (Dercon, 2001). However, as Chaudhuri (2003) notes, ex ante interventions are more effective in reducing consumption vulnerability but less so overcoming the structural problems of the vulnerable.

"Vulnerability" broadly reflects three components: the sources of risk, the ex ante strategies for addressing these, and the ex post responses. By definition, the sources of risk (the shocks) are exogenous and cannot be controlled by households. However, since households²⁷ use ex ante strategies and ex post responses to mitigate the risk and to cope with the shock, vulnerability is endogenous (Dercon, 2001). A household may experience many shocks over a period. The ability to limit exposure to and cope with shocks determines which shocks are important. Therefore, the importance of any shock may vary across geographical areas and even within the households of a single village.

Shocks and, therefore, risk can be divided into two categories: idiosyncratic and covariate (systemic). The former affect individual households and include such things as the illness or death of a family member. By contrast, systemic shocks affect groups of households or geographical areas such as regions or countries. Examples include the risk of drought, conflict, declining commodity prices, rising input prices, or the collapse of markets. The difference in shocks also leads to different types of interventions being effective. Informal or market-risk based mechanisms tend to have difficulty addressing covariate shocks (Holzmann, 2001). Likewise, governments may have problems dealing with idiosyncratic shocks (for a variety of reasons including asymmetric and imperfect information and high transaction costs) and their role may be best limited to facilitating the responses of other actors (Murdoch, 2004).

Based upon this definition of vulnerability, chronic and transient poverty may provide a lower bound estimate of the number of vulnerable and their location. Annex Table I presents the results of several panel studies of poverty dynamics in SSA.²⁸ With the exception of Barret et al. (2006), transient poverty levels are generally as large as or larger than chronic poverty levels. As proxied here, vulnerability levels tend to vary between 40-70 percent of the population.²⁹ The differences between Barret et al. (2006) and the other studies may be due to the sample which is not representative nationally or for rural areas. Table I also suggests that overall vulnerability is higher in rural areas in part due to the higher levels of "sometimes" poor in these areas.

AGRICULTURAL GROWTH AND VULNERABILITY

A priori, different types of growth can contribute to reducing poverty. Agricultural growth may be particularly relevant for several reasons. Firstly, agricultural growth directly reduces vulnerability. Thirtle et al.'s (2002) estimate that a one percent increase in agricultural yields reduces poverty at the global poverty line (1\$/day) by 0.64 to 0.91 percent at the national level. This relatively high impact is because the majority of both the vulnerable and the overall population live in rural areas. Moreover, agriculture is quite important as roughly 70% of the workforce in Africa is at least partially engaged in agriculture (Maxwell, 2001).

²⁷ While the shocks are exogenous for households, they are not necessarily exogenous at higher levels. For instance, the government may take actions which limit the risk of inflation.

²⁸ As Baulch and Hoddinott (2000), there may be measurement error of income and expenditure. A priori, this would result in households being erroneously listing as changing poverty status. Therefore, the "always" and "never" poor categories are likely undercounted while the "sometimes" poor categories is likely over counted.

²⁹ The differences between Barret et al. (2006) and the other studies may be due to the sample which is not representative nationally or for rural areas.

In the short run, agricultural growth reduces vulnerability by increasing farmers' income, providing employment for agricultural labor and increasing wages of agricultural labor and lowers food prices for both the urban and rural poor (Chaudhuri, 2003; Timmer, 1988). Apart from net food consumers, household involved in agriculture, especially those who are linked to markets, will be the primary beneficiaries. The increased income help vulnerable households build their assets and thereby increasing their ability to generate income and resist shocks. For instance, Owens, Hoddinott and Kinsey (2003) underline the importance of oxen to both generate income and resist shocks. Since at least two oxen are needed to plough, households with two or less oxen were three times less likely to sell oxen despite irreversible impacts on the household.

Secondly, in the medium run, agricultural growth has important indirect effects through growth linkages which stimulate the non-agricultural sector (Stern, 1996; Timmer, 2003). At lower levels of development, the backward linkages from agriculture are especially strong (Vogel, 1994). Agricultural productivity is also positively linked with non-farm activity in Africa (Barret et al., 2001). As Uganda's experience shows (Box 1), income diversification is particularly important. For instance, a number of studies have found non-farm income and household welfare indicators to be positively related in rural Sub-Saharan Africa (Barret et al., 2001).

Box 1: Vulnerability in Uganda

The 1990s and the early 2000s were a period of rapid economic growth in Uganda (6.5 percent annual growth rate). The distribution of growth across sectors, however, was not equal as agriculture grew at a slower rate than industry and services (4.3 annual average growth rate vs. 9.7 and 7.4 respectively). The composition of the growth had a strong impact on vulnerability.

During this period, vulnerability (chronic and transient poverty) remained high (70-75 percent) especially relative to poverty (53.9 percent in 1992). Due to low urbanization rate and the higher incidence of rural vulnerability, the majority of the vulnerable were in rural areas (90.9%). Since agriculture is the major source of rural livelihoods, rural areas (and the majority of the vulnerable) benefited relatively less from the growth.

Overall, 29.2 percent of households emerged from poverty while 11.7 percent fell into poverty. The majority of those who moved out of poverty shifted from agriculture to non-agricultural self-employment and the formal sector. Agriculture, however, remained an important backup strategy for households whose head was not employed in the sector.

Initial assets, both physical and human (including health), were important determinants of income growth during the period. Moreover, access to public goods increased incomes and decreasing the risk of subsequently falling into poverty. For instance, access to electricity resulted in higher income and expenditure (3.5 and 6 percent respectively).

Several policy lessons emerge from Uganda. Firstly, access to public goods was important. Roads and electricity helped the formation on rural non-farm businesses. Roads additionally provided links to markets for produce. Education was also linked with lower levels of poverty. Secondly, a lack of initial assets constrained households. Credit financing was suggested as a means to overcome low physical assets. Thirdly, increased coffee prices were beneficial for overall growth and for small producers. Future price decreases, however, could be quite harmful due to the high elasticity of both growth and poverty to prices. This is largely due to the lack of diversification in rural areas as there are relatively few other cash crop options.

Agricultural growth remains an important source of future vulnerability reduction in Uganda due to the number of poor engaged in agriculture and its importance as a backup strategy for others. Improving access to rural infrastructure and land are important future steps. Moreover, access to improved technologies may be required. Only 13% of agricultural households in the poorest quintile reported being visited by an extension office.

Based upon Deininger and Okidi (2003), FAOSTAT, Okidi and McKay (2003), World Bank (2006a), and WDI 2006.

Thirdly, as a sector, agriculture is both for overall growth and export earnings. It lies at the center of the rural economy and, in countries without mineral resources, it is often integral to national growth (WFP, 2002). For instance, in 1997/1998, the cotton sector in Mali represented close to half of export revenue and 6 and 9 percent of total tax revenue and GDP respectively (IMF, 2002). The sector directly affected the livelihoods of roughly a third of the population.

In sum, agricultural growth in many ways may contribute to lower levels of vulnerability, in particular for those in SSA who rely on agriculture as their main source of livelihood. However, agricultural growth may not benefit all of the vulnerable. Broadly speaking, those who do not benefit can be classified into three groups. The first group may include such categories as landless workers, urban vulnerable, and disabled. Because of lack of land or working ability, these people cannot directly share the broad-based agricultural growth. In the long run, due to the rural-urban growth linkage, they may benefit from increased non-farm employment opportunities due.

The second group is comprised of those who could benefit from the growth but are unable to participate. For instance, they may forgo the income generating opportunities, such as commercial farming and non-farm activities income because of perceived risk (Barrett et al., 2001; Hoddinott and Quisimbing, 2003). Alternately, households may be constrained from participating in the growth due to lack of resources such as modern agricultural inputs.

Finally, there are those whose income and vulnerability increase due to agricultural growth. New livelihood strategies may result in higher incomes but also higher vulnerability, especially in the short run. Farmers who switch from cereal to coffee production may gain higher incomes but become more vulnerable to the fluctuations of international market prices.

In a word, agricultural growth may not be a silver bullet in reaching all the vulnerable population. Complementary risk-reducing programs/social protection programs may be important, particularly in the short run (Chaudhuri, 2003; Farrington, 2005; Farrington et al., 2004).

INVESTMENT OPTIONS

Various agricultural investment and spending instruments—such as infrastructure; research and development; insurance schemes; and price stabilization—can help reduce vulnerability. The choice of investments may vary depending on the levels of poverty and vulnerability. Chaudhuri (2003) argues that therefore poverty alleviation investment should focus on the poor regions while preventive ex-ante investment should focus on vulnerable regions. For instance, regions where production is highly concentrated in one or two crops may be vulnerable without being poor. Investments in disease resistant crops can maintain and stimulate growth in these areas.

Annex Table 2 lists the determinants/policy recommendations of the studies on the dynamics of poverty from Annex Table 1. Since some of the studies were strictly descriptive or did not contain policy interventions, they do not appear in Annex Table 2. Below, we discuss the possible interventions which consistently emerge from Table 2 as well as other options based upon the literature.

Rural Infrastructure and Access to Markets

Improved infrastructure may reduce transactions costs, link the labor and product markets, and promote divisions of labor (Bigsten and Shimeles, 2004; Dercon, 2001). Moreover, the construction of the infrastructure can reduce vulnerability by providing income sources for households in the off-season. (Peters, 1996) Lower transaction costs allow more people to participate in markets and may potentially increase the profits of

those already engaged in markets. For instance, distance from markets (in terms of time of travel) largely influences both the choice and the manner of farmer interaction with markets (Fafchamps and Shilpi; 2005).

Markets may be important for a variety of reasons including spreading risk and increasing incomes. Dercon (2001, p.58) argues that "[m]arkets are means of linking people both spatially and over time." That is, they allow (risks and) shocks to be spread over wider areas. In particular, markets should make households less vulnerable to (localized) covariate shocks. For instance, food prices will not increase as much in the aftermath of a local drought. Additionally, pre-existing coping strategies, such as the sale of productive assets, will be more effective thereby avoiding potentially irreversible effects from their sale.

The World Bank study "Operationalizing Pro-Poor Growth" highlights the importance of markets to poverty alleviation. It also underscores that markets are particularly helpful to the vulnerable. "Among the low income African countries in the sample, high transaction costs and low market access were among the most important constraints on expanding agricultural earnings, especially for small farmers and those in remote areas" (World Bank, 2005, p. 5).

Moreover, improved infrastructure should encourage the formation of non-farm enterprises, which as noted above, is linked with decreased vulnerability. Infrastructure may also facilitate migration and remittances, an important ex ante and ex post mechanism for reducing vulnerability.

Irrigation

Irrigation may be particularly relevant based upon both its impact on chronic and transitory poverty and the conditions in SSA. It directly reduces poverty and vulnerability by reducing the impact of shocks such as droughts, by increasing yields and cropping intensity and by encouraging crop switching towards more marketable crops. Indirectly, the labor-intensive nature of irrigation development (construction, maintenance) and irrigated farming may increase the demand for labor (Hussain and Hanjra, 2004).

Price Stabilization and Agricultural Insurance

Food price risks are particularly important in areas where food consumption is dominated by one staple such as white maize in Eastern and Southern Africa or millet/sorghum in the Sahelian countries in West Africa (Byerlee et al., 2006). While price fluctuations adversely affect households (food insecurity, labor productivity and aggregate growth, policy options have had mixed results (Myers, 2006). "The potential gains from stabilization may be higher when poor consumers who produce little food spend a large proportion of their income on food, and are highly risk averse, make up a high proportion" (p. 296, Myers, 2006).³⁰

Counter-cyclical safety nets may also help to reduce price risk as well as overall vulnerability. In particular, weather-based insurance, has been used recently as exemplified by the World Food Program's purchase of insurance against severe drought in Ethiopia (Lacey, 2006). However, the perceived and actual timeliness may limit its use as an effective insurance mechanism (Alderman and Haque, 2006). That is, if households are uncertain about the program - the payoff, the timing and selection of recipients - they may simply persist in the same behavior and therefore potentially forgo risky but potentially beneficial opportunities.

The Productive Safety Net Program (PSNP) provides an example of how to potentially overcome these types of problems. The program, which is currently being evaluated, was designed to make the intervention more predictable from the perspective of (chronically food insecure and transient food insecure) households. Specifically, it guarantees a certain amount of (public infrastructure) work during the dry season and provides

³⁰ Poulton et al. (2006) provide a useful review of the strength and weaknesses of various state interventions in SSA. Gabre-Madhin and Goggin (2005) provide a background on commodity exchanges particularly in Ethiopia.

the bulk of transfers before the beginning of the "hungry season." A second component is primarily focused at transient food insecure households and provides payments based upon a rainfall-based index (which allows payments in a predictable and timely fashion) (World Bank, 2006b). These two components should allow beneficiaries to engage in riskier but more profitable activities based upon the certainty regarding the timing and quantity of the benefits from the program. Moreover, it increases the likelihood of the transfer arriving before asset depletion (PSNP PPT, 2001).

Agricultural Research and Development

Agricultural research and development (R&D) can reduce vulnerability by targeting less favored areas with large population in agriculture (such as Northern Ghana), small holders, and specific nutritional deficiencies (Hazell and Haddad, 2001). Natural resource management practices can improve soil depth and fertility in less favored areas. Likewise, increasing yields in the main staple crops can directly benefit small holders, who tend to be poor and to consume their own production.

Agricultural research can also be used to introduce drought and disease resistant crop varieties or to help alleviate nutritional deficiencies. High vitamin-A sweet potatoes are currently being introduced to reduce the particularly high levels of vitamin A deficiency in children in East Africa (HarvestPlus, 2005). An estimated 38 and 68 percent of all children in Uganda and Mozambique respectively are vitamin A deficient, a condition associated with blindness in children and a 23 percent increase in child mortality.

CONCLUSION

Vulnerability to poverty remains an important issue in many Sub-Saharan Africa countries as large fractions of the population are either transitory or chronically poor. This paper argues that agriculture plays an important role in reducing poverty based upon the location of the vulnerable, the source of their livelihoods, and the links of agriculture with other sectors. Agricultural growth directly benefits those in the agricultural sector as well as net food consumers. In addition, through linkages, agricultural growth may stimulate other sectors of the economy thereby directly reaching other vulnerable groups and allowing others to either diversify their livelihoods or to move out of agriculture, a sector particularly prone to shocks.

Further research is needed to directly measure the effects of agricultural growth - via the different transition mechanisms - on vulnerability reduction. This can also help to guide public investment. The available research suggests that markets, infrastructure such as roads and irrigation, and livelihood diversification options may be especially important.

Agricultural growth is not silver bullet and will not reach all vulnerable groups. Social protection programs will remain important to help those left behind. Moreover, interventions such as credit or food for work can also help other vulnerable groups participate in the benefits from agricultural growth. The challenges for governments is to balance social spending which is important for buffering short-run risks, and long-term productive public investments which are more sustainable and have lasting impacts on reducing poverty and vulnerability.

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ANNEX TABLE I: CHRONIC AND TRANSIENT POVERTY

Study	Carter (1999)	Dercon and Krishnan (1999)	Bigsten and Shimeles (2004)	Grootaert and Kanbur (1995)	Okidi and McKay (2003)	Deininger and Okidi (2003)	Hoddinott, Owens and Kinsey (1998)	Barret et al. (2006)
Country, Years	South Africa, 1993-1998	Ethiopia, 1994-1995	Ethiopia, 1994-1997	Cote D'Ivoire, 1987-1988*	Uganda, 1992-1996	Uganda, 1992-1999***	Zimbabwe, 1992-1993 to 1995-1996**	Rural Kenya and rural Madagascar, primarily 2000-2002**
Representative	KwaZulu-Natal	Rural	National	National	National	National	Resettlement	Parts of rural areas
<i>National</i>								
Always	22.7	24.8	-	25	12.8	24.6	10.6	70.8
Sometimes	31.5	30.1	-	22	57.3	40.9	59.6	22.5
Never	45.8	45.1	-	53	29.9	34.5	29.8	6.8
<i>Rural</i>								
Always	-	-	12	-	18.2	-	-	-
Sometimes	-	-	55	-	61.6	-	-	-
Never	-	-	33	-	20.2	-	-	-
<i>Urban</i>								
Always	-	-	22	-	5.4	-	-	-
Sometimes	-	-	37	-	51.7	-	-	-
Never	-	-	41	-	43.1	-	-	-

* While additional years are report in the paper, only most recent data is reproduced here.

** These studies use income per capita to define poverty. The other studies use expenditure per capita.

*** The paper covers the period 1992-2001 however the data reported for this chart are 1992-1999

Partially based on Baulch and Hoddinott (2000)

ANNEX TABLE 2: POLICY INTERVENTIONS FROM DYNAMIC POVERTY STUDIES

Study	Dercon and Krishnan (1999)	Okidi and McKay (2003)	Bigsten and Shimeles (2004)	Owens, Hoddinott and Kinsey (1998)
Country, Years	Ethiopia, 1994-1995	Uganda, 1992-1996	Ethiopia, 1994-1997	Zimbabwe, 1992-1993-1995-1996**
Determinants and Policy Suggestions	Capital and labor characteristics; Access to road infrastructure and proximity to towns. Authors suggest that the proximity reflects income diversification and lower food prices.	Initial assets and education; Access to infrastructure; Importance of output prices suggest that poor producers may be vulnerable to price fluctuations unless there are opportunities to diversify	Crops sales and ownership of assets; Market access; Off-farm activity is negatively correlated; infrastructure; Safety nets to address transient poverty	Shift of policy interventions from ex-post to ex-ante. Potential importance of agricultural extension on farm production

ANNEX 4: COLLECTION OF IEHA PERFORMANCE DATA

IMPORTANCE OF IEHA PERFORMANCE MONITORING SYSTEM

IEHA's performance monitoring system tackles the difficult problem of reporting on development efforts taking place at the community, national, regional and continent levels. Using a set of common indicators, it tracks and aggregates performance across different geographical areas, commodities, enterprises, and development activities. IEHA has put in place a way to tell its story in a more coherent manner, while still recognizing the richness and diversity of individual efforts.

IEHA is also working on building national level data and analysis systems to track primary development indicators like income, poverty, and hunger. It is examining the linkages between the micro and macro level performance measures, and between outputs, intermediate results, and impacts. Review of performance data allow IEHA management to understand better areas in which improvements or changes of course need to be made.

In 2004 IEHA had about one thousand individuals who were involved in collecting, reporting and analyzing performance data. It is that kind of network of dedicated individuals that produced the data for this report.

IEHA indicators include both quantitative and qualitative information to create the most comprehensive picture of progress made that is possible and that can be aggregated across Operating Units. IEHA indicators are very consistent with those in the unified Foreign Assistance Coordination and Tracking System (FACTS) system in the new Foreign Assistance Framework, thereby minimizing reporting burden on Operating Units.

DATA COLLECTION PROCEDURES

IEHA requests data at the end of the USG Fiscal Year for the year just ended. It requests that data be submitted by mid-December. The IEHA annual report is prepared as soon as possible thereafter.

IEHA collects data on outputs and on results from participating Operating Units. Data on higher-level goals and objectives (like rural household income and the MDGs) are also collected. IEHA solicits narratives with all performance data to ensure that the meaning of the data is properly understood and can be incorporated into IEHA reporting. All indicators are defined in the IEHA M&E paper (Ender and Hill, 2005), which is available at: <http://www.afr-sd.org/IEHAinformation.htm>.

Data reported reflect the direct effects of USAID interventions; except as noted, they reflect the project scope not national statistics. Data reported are requested to be the incremental amounts for the year being reported, not cumulative amounts that include previous years.

Most indicators have only one or two data elements and reporting is quite straightforward. Most of the IEHA indicators were already in use by some or all of the Operating Units before they were designated as IEHA indicators. Some indicators, like gross margin per unit area, have several data elements that need to be reported so that results can be properly aggregated across Operating Units and so that a richer story can be told about the progress made.

Each year templates are sent to the IEHA Operating Units to set targets for the coming year and to enter data for the fiscal year just completed. Operating Units may send these templates to their implementing partners and have them complete the data entry. Operating Units are responsible for assembling all relevant data and forwarding them to the IEHA M&E coordinator as one complete report for that Operating Unit. The IEHA M&E coordinator assembles all data from Operating Units and drafts an annual report and associated charts and tables.

In addition to the USAID Operating Units that participate in and report to IEHA, SAKSS and ReSAKSS units/nodes also provide key analytical information that helps IEHA to track progress toward higher level goals and to understand better the importance and relevance of the results reported by the IEHA operating units.

IEHA PERFORMANCE INDICATORS

The following are the indicators of performance that IEHA uses, shown by Intermediate Result.

Intermediate Result 1: Enhanced Productivity of Smallholder-Based Agriculture

Indicator: Gross margin per unit

Definition: Gross margin (profits) per hectare/animal for targeted commodities. Reporting by crop includes: area, value of sales, quantity sold, total cost of purchased inputs, and production. Reporting by dairy animal includes: number of milking animals, value of dairy product sales, quantity sold, total cost of purchased inputs, and total production.

Sub-Intermediate Result 1.1: Expanded Development, Dissemination, and Use of New Technology

Indicator: Adoption of targeted technologies

Definitions: Area under new technology/number of improved animals/volume of produce processed (depending on the nature of the technology) as a percent of total commodity-related target; and

Number of farmers, processors, and others who have adopted, disaggregated to show how many are smallholders

Sub-Intermediate Result 1.2: Enhanced Human and Institutional Capacity for Technology Development, Dissemination, and Management

Indicator: Institutional capacity (technology)

Definition: Partner Institution Viability Assessment (PIVA) score of relevant institution (or equivalent quantitative information about the scale and quality of change).

Intermediate Result 2: Improved Policy Environment for Smallholder-Based Agriculture

Indicator: Policy reform (milestones)

Definition: Several stages were defined to measure the progress of reform: analysis completed; dialogue conducted; proposal submitted to relevant body for consideration; legislation (or decree, etc.) passed/signed/approved; implementation begun (e.g., regulations issued)

Sub-Intermediate Result 2.1: Enhanced Human and Institutional Capacity for Policy Formulation and Implementation

Indicator: Institutional capacity (policy)

Definition: PIVA score of relevant institution (or equivalent quantitative information about the scale and quality of change).

Intermediate Result 3: Increased Agricultural Trade

Indicator: Agricultural trade

Definitions:

- Volume and value of international agricultural exports (targeted commodities)
- Volume and value of intra-regional agricultural exports (targeted commodities)

Sub-Intermediate Result 3.1: Enhanced Competitiveness of Smallholder-Based Agriculture

Indicator: Domestic agricultural trade by smallholders (targeted commodities)

Definitions: Volume and value of purchases from smallholders of targeted commodities

Sub-Intermediate Result 3.2: Enhanced Agricultural Market Infrastructure, Institutions, & Trade Capacity

Indicator: Trade-supporting transactions and capabilities

Definitions:

- Value of credit (including working capital) disbursed to targeted beneficiaries;
- Number of targeted enterprises accessing BDS;
- Number of targeted firms achieving international standards; and
- PIVA score of relevant organization (or other quantitative information about the scale and quality of change).

