POLICY SYNTHESIS
for Cooperating USAID Offices and Country Missions
(http://www.aec.msu.edu/fs2/psynindx.htm)

Number 84 October 2009

IMPROVING FOOD SECURITY IN AFRICA: HIGHLIGHTS OF 25 YEARS OF RESEARCH, CAPACITY-BUILDING, AND OUTREACH

By the MSU Food Security Group**

Food Security III Cooperative Agreement between the U.S. Agency for International Development, Economic Growth, Agriculture, and Trade Bureau, and the Department of Agricultural, Food, and Resource Economics, Michigan State University

INTRODUCTION: Decades of research have led to substantially improved understanding of the nature of food insecurity.[1] A combination of economic growth and targeted programs resulted in a steady fall (until the food crisis of 2007/08) in the percentage of the world's population suffering from undernutrition (from 20% in 1990/92 to 16% in 2006). Yet over a billion people still face both chronic and/or transitory food insecurity due to long-standing problems of inadequate income, low-productivity in agricultural production and marketing, and related problems of poor health and absence of clean water. Assuring adequate food security for such a large share of the world's population is increasingly challenging due to continuing resource degradation driven by a combination of population pressure and outdated agricultural practices, poorly functioning input markets, rapid urbanization, increased concerns about food safety, and climate change.

This document contains an overview of the past 25 years of research, capacity-building, and outreach by MSU's Food Security Group. The paper describes key elements of the FSG approach and draws lessons regarding the value of that model. Insights gained from research and outreach and their value in addressing the major current challenges facing food and agricultural systems in Africa are summarized in FSG (2009).

EVOLUTION OF THE FSG PROGRAM: MSU FSG researchers and their colleagues have been carrying out integrated programs of applied research, capacity building, and policy dialogue focused on food security—largely in Africa—since the early 1980s, building on insights from two decades of earlier projects that addressed agricultural and rural development. Three ten-year food security cooperative agreements—from 1982 through 2012—have been funded by USAID central offices and country and regional missions.

The strategic goal of these cooperative agreements has been to integrate research findings into national, regional, and international policy dialogue and program design to promote rapid and sustainable agricultural growth as a means to cut hunger and poverty. The focus on food security ensures that this key dimension of individual welfare is given priority along with economic growth objectives. The orientation of MSU's food security projects towards improving the performance of agricultural production and marketing systems contributes to both food security and economic growth objectives, given the vital role that the agricultural sector plays in economic growth in Sub-Saharan Africa. Strategies for achieving food security are analyzed within a structural transformation[2] context that takes into account the role of trade, non-farm income generation, and the implications of agricultural development for poverty alleviation and sustainable natural resource use.

[1] A common definition of food security is "access by all people at all times to enough nutritious food for an active, healthy life" (USDA 2009). This implies sufficient supplies of food, physical and financial access to those supplies, and nutritional adequacy in terms of dietary needs. Even if enough food exists at the regional, national, or global level, various physical, economic, or policy constraints may affect food distribution, so that food needs are not met at the household (or intrahouse-hold) level. Inadequate knowledge about practices in food preparation and hygiene, and poor health, can compromise utilization of the nutrients available to a household or individual. The resulting food insecurity may be temporary (e.g., caused by unfavorable weather), or chronic.

[2] Structural transformation is a process by which "the relative contribution of nonagricultural sectors to the overall economy rises as agriculture's share declines in relative terms" (UNECA 2005, p. 129) and an increas-ing share of household production and consumption is exchanged through markets.

An important premise of the FSG program is that improved technology, institutions, and policies are required to address complex problems of agricultural development and food security. Single-factor solutions are rarely effective beyond the very short run. All market-based approaches require some form of collective action based on a combination of public goods and coordination arrangements that evolve over time. Consequently, institutional design is critical for successful public and private investments.

The operational hallmarks of the FSG program include: (a) empirical research focused on real-world problems and themes identified in partnership with African colleagues and the funding agencies; (b) integration of research, outreach, capacity building and institutional strengthening; and (c) a strong team orientation among those involved.

Major research themes for the 2002-2012 phase of food security research are:

1. Improving food systems performance. Subthemes include analyzing the drivers of agricultural productivity growth and agriculture-environment linkages, and strengthening specific commodity value chains, input/output market performance, and regional trade.
2. Understanding household income and livelihood dynamics. Illustrative topics include how the level and distribution of rural assets affect food security, the design of collective actions for financing social and infrastructure investments, and how households respond to rising prime-age mortality as they try to maintain their food security.

Guided by the themes and principles listed above, MSU's research and outreach program has focused on the following three major topic areas:

Farm and household productivity and technology use: (1) Studies of farm productivity, which highlighted the role of technology adoption, such as improved inputs, and underlined the importance of both incentives (profitability) and capacity (resource endowment) in stimulating sustainable technology adoption; (2) evaluation of alternatives for soil fertility improvement (including organic as well as inorganic fertilizer), and economics of improved seed and fertilizer use; (3) economic returns to agricultural research; and (4) synergies between cash crops (such as cotton) and food crops, through improved input and output market access. In all this work, female- as well as male-headed households are identified and studied so that gender dimensions of food security are mainstreamed.

Marketing and regional trade: (1) organization and performance of markets for staple foods (especially maize, rice, and cassava), horticultural crops, and agricultural inputs; (2) the design and impacts of market information systems; (3) the extent and impacts of market reform programs; (4) input/output market linkages, e.g., for cotton and horticultural crops; (5) impacts of government and donor policies on private market participants; (6) determinants of household participation in staple food and cash crop markets; and (7) regional trade flows in West and Eastern/Southern Africa, and the use of "food sheds" as a conceptual and empirical framework for studying domestic and regional food security and trade policy.

Improving the food security of vulnerable groups: (1) distribution of household income and assets, including land, and implications for agricultural growth potential; (2) implications of alternative agricultural growth patterns for child nutritional status and income distribution; (3) income and poverty dynamics, including empirical trends and key factors determining positive or negative income changes over time; (4) incidence and impacts of HIV/AIDS on farm households; (5) identification of emergency responses, including food aid, that mitigate food insecurity while avoiding negative consequences on development objectives; (6) design of food aid programs that enhance rather than constrain or damage private sector and regional trade, including local purchase initiatives and market sales of food aid imports; (7) the design of local-level approaches to food security planning; and (8) experience with large-scale fertilizer and seed subsidy programs (Malawi, Zambia), including the difficulties of targeting subsidies to the poorest households, displacement of commercial sales by subsidized inputs, and other negative impacts on private traders, and magnitude of program benefits relative to program costs.

LESSONS LEARNED: The FSG program has been remarkably successful in helping to frame food policy debates, reformulate approaches (e.g., to management of food aid) and design facilitating institutions such as market information systems and value chain strategic planning taskforces, that have contributed to improving food security in several African countries. This brief draws lessons from the past 25 years of FSG research, outreach, and capacity building about the approach used to achieve these successes. A longer document (FSG 2009) also describes many of the lessons learned

with respect to the key subject-matter areas that the group has addressed.

The following characteristics of the FSG approach have been critical to its success: demand-driven collaborative design and implementation; a policy orientation supported by empirically based analysis; integration of research, outreach, and capacity building; a team approach; sustained focus on selected themes and countries/regions; and institutional factors such as the cooperative agreement funding mechanism, university support, and integration of the FSG program within its home department at MSU.

Demand-driven collaborative design and implementation: FSG's success comes from working closely with clients and stakeholders to define research problems jointly in a real-world context. Stakeholders include MSU, host country organizations and stakeholders, and the donor (USAID and others). The partnership with stakeholders continues throughout the research process. Initial identification and framing of the research questions are done collaboratively with stakeholders. As results become available, they are shared quickly in order to enable stakeholders to validate the findings or suggest other interpretations of the results, and apply the results if they find them relevant. The feedback from stakeholders also allows the researchers to adjust their agendas as the work progresses. In addition to this collaborative work with stakeholders, FSG researchers also contribute to the debate about key agricultural issues and solutions through peer-reviewed publications addressed to academic and practitioner audiences.

A policy orientation supported by empirically based analysis: FSG activities combine applied policy-oriented research with sustained policy dialogue with local decision makers to sharpen the relevance of the research to policy makers and translate applied research and policy analysis findings into action. While campus-based faculty members are involved in the policy dialogue process, it depends critically on contributions from in-country project team members (e.g., in Mali, Mozambique, Zambia).

Interim reports (working papers and presentations) are used to communicate research findings as they are being generated, in order to contribute to the policy dialogue process in a timely way.

Rather than base the policy dialogue just on theoretical analysis, FSG and its African partners collect household, firm, and market-level data and analyze them to provide new empirical insights into the operation of production and marketing systems, and the impacts of various measures taken (or not taken) to stimulate economic growth and foster food security.

Important determinants of success in achieving policy impact include:

- Involving local analysts on the research and outreach team, to benefit from their local knowledge and to increase the credibility of results obtained.
- Designing research and outreach collaboratively and orienting them to key policy issues.
- In addition to supplying policy-relevant research and outreach products, creating, through on-going policy dialogue, a demand among decision makers for policy-relevant research.
- Ensuring that data collected are analyzed and results shared with decision-makers.
- Striving for long-term involvement in-country in order to improve research relevance, quality, and credibility with decision makers.

Integration of research, outreach, and capacity building: FSG's empirically based outreach efforts have had some very important impacts on building and strengthening local institutions. It is through the outreach that the group learns many of the important lessons from its work. For example, impacts in West Africa include the creation and strengthening of market information systems throughout West Africa, the assistance to local communities in developing local food security plans in Mali, the creation of the subsector economics unit (ECOFIL) within the national agricultural research institute (IER) in Mali, the strengthening of the Food Security Commissariat in Mali, and fostering the creation of a regional traders' organization (ROESAO). In East and Southern Africa, reports and outreach have generated demand among policy-makers for empirical analysis and greater analytical rigor, as seen in the public policy debates in Zambian newspapers, for example. In Mozambique, FSG designed and continues to support the market information system and the Socio-Economics Studies Center of the Agricultural Research Institute (IIAM).

Capacity building—at both the individual and institutional levels—has been a key objective of MSU project activities. It is achieved as a joint product of MSU's research and outreach activities through a combination of long-term degree training, short courses, and in-service training in research/outreach skills. Graduate students from host countries and the U.S. play key roles in the research and outreach process.

FSG has had its strongest impacts in countries where there already exists, or FSG has helped to create, a cadre of well-trained analysts. Training researchers and policy analysts and sustaining this capacity within government and academic institutions is challenging because of the under-supply of African professionals with graduate training and the strong effective demand to hire them away, coming from international organizations, donors, NGOs and the private sector.[3] Long-term projects that partner closely with local institutions can build more sustainable capacity by offering in-service and graduate degree training opportunities to junior project staff, and then continued employment in the same institution or project upon completion of training, which increases the staff's incentives to return home after training. [4] Returning staff can be engaged professionally in a rewarding and positive environment, in which they can build their skills and see the value of their work.

A team approach: The FSG and its predecessor programs in Africa have been large, team-oriented programs with collaboratively determined agendas and well-coordinated activities. A shared vision regarding objectives and methods and a commitment to the team approach have been essential.

Sustained focus on selected themes and countries/regions: By responding to local problems and policy issues, FSG country-level projects have been able to attract the financial resources from a range of different funders needed to maintain a long-term involvement — 8 to 15 years or more in the above countries, as well as in Kenya and the West African subregion (via engagement with CILSS) . This has strengthened understanding of local circumstances and built relationships with key institutions and decision-makers that greatly improve the effectiveness of new initiatives, and reduce their start-up and transactions costs.

Institutional factors: cooperative agreement funding mechanism, university support, and integration of FSG program within its home department: The cooperative agreement mechanism, by providing core funding as well as a structure for specific country buy-ins, allowed the development of a model that would have been impossible under the traditional contract mechanism—especially the ability to develop core research themes and use them to derive comparable results across multiple countries.

Historically, all levels within MSU—from President to department—have been committed to maintaining a critical mass of faculty and graduate students working on these applied research, capacity-building, and outreach/policy dialogue activities, and to rewarding the wide range of contributions to scholarship that they provide.

Because the FSG is integrated into the Department of Agricultural, Food, and Resource Economics at MSU, rather than operating as a self-contained center, FSG faculty contribute to teaching, graduate student advising, service, and other aspects of the department mission. This strengthens the sense of ownership of the program by the department and university, and allows the program to benefit more from linkages to department faculty, students, and financial resources.

Ability to leverage resources: Because of its reputation, in part through publications aimed at the broader development community and academic peers, the FSG has been able to attract substantial funding from non-USAID sources (e.g., foundations) as well as USAID. The ability to combine funding from multiple sources and coordinate the resulting programs to exploit complementarities allows the FSG to leverage the resources available from any one funder and address a broader range of food security issues in more depth than would otherwise be possible.

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** The MSU Food Security Group (FSG) is comprised of faculty members and graduate students of Michigan State University who conduct research, outreach, and training, primarily in countries of Sub-Saharan Africa, with colleagues from these countries. FSG's work is supported primarily through grants and contracts with a wide range of organizations, of which USAID has historically been the largest funder. This brief was prepared by Eric Crawford, Duncan Boughton, James Allen IV, Cynthia Donovan, Steven Haggblade, David Mather, John Staatz, David Tschirley, and Michael Weber.

[3] One could argue that movement of trained junior staff to other national or regional positions should also be seen as a capacity-building success.

[4] MSU has had a very high rate of success of graduate students returning after graduate training to their home institutions with whom MSU collaborates. Examples include the Bureau d'Analyses Macroéconomiques of the Institut Sénégalais de Recherches Agricoles (Senegal), the Departemento de Anàlise de Políticas and Center for Socio-Economic Studies (Mozambique), (Mozambique), the Agricultural Consultative Forum (Zambia), the Observatoire du Marché Agricole (OMA) in Mali, the Department of Agricultural Economics, University of Zimbabwe, and the Tegemeo Institute (for agricultural policy), Egerton University, Kenya.