Title of Proposal: Expanding Bean Supply and Demand: Identifying Constraints and New Strategies

**Name(s), institutional affiliation and contact information of Lead U.S. Principal Investigator(s)**

Richard H. Bernsten, Duncan Boughton, Cynthia Donovan, Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824

**Name(s) and institutional affiliation of all Host Country (HC) and U.S. Co-PIs**

Angola: Dr. David Kiala, Universidade Agostinho Neto; Honduras: Dr. Juan Carlos Rosas, Escuela Agricola Panamericana; Mozambique: Feliciano Mazuze, Institute de Investigacao Agraria Mozambique

**Proposed Project Period:** (30 months maximum, between April 1, 2008 – September 30, 2010)

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**Proposed HC institutions to be sub-contracted (abbreviated name):**

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<td>Escuela Agricola Panamericana</td>
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**Authorized lead U.S. institutional representative**

(type name, phone number and e-mail): Joseph F. Salas

Signature: [Signature]  Date: 11-30-07
Title of Proposal: Expanding Bean Supply and Demand: Constraints and New Strategies

Name and Institutional Affiliation of the U.S. Principal Investigator:
Richard H. Bernsten, Department of Agricultural Economics, Michigan State University, East Lansing, MI 48824

Abstract (Limit: 1800 characters including spaces — about 200 - 250 words):

This proposal includes research and training to address Pulse CRSP Topical Areas C and D for three developing countries, two in lusophone southern Africa (Angola and Mozambique) and one in Latin America (Honduras). The goal of the project is to increase smallholder incomes and expand availability of marketed beans. In all three countries beans are the most important legume and expansion of market opportunities for smallholder farmers to encourage productivity and accelerate the transformation from semi-subsistence to commercial farming is a key priority. In collaboration with host country national researchers, differences in market opportunities and constraints will be addressed through an action research approach that brings together public, private and NGO stakeholders with a multidisciplinary perspective. In all three countries systematic analysis of secondary data combined with rapid appraisal of production and market constraints and opportunities will identify key leverage points and pilot interventions to improve the competitiveness of bean value chains. Research in Honduras will include an innovative focus on producing "organic fair trade" beans for export to US retailers. The research activities address IEHA framework pillars 1, 3 and 4, and Mozambique is a priority IEHA country. A staff member of the collaborating institutions in Angola and Mozambique will complete MS degree training in Agricultural Economics at Michigan State University. Research institutions in all three countries will be strengthened in their capacity to undertaken value chain analysis in collaboration with private sector agents and complementary public sector services (e.g., market information, extension) and benefit from cross-country learning with this innovative approach.

Pulse Crop of Focus (select at least one between beans and cowpeas)

<table>
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<tr>
<th>Beans</th>
<th>Cowpeas</th>
<th>Other (specify)</th>
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Topical Areas to be Addressed By this Project

Select one or more under Global Themes A-C:

A. To reduce bean and cowpea production costs and risks for enhanced profitability and competitiveness.
   1. Genetic Improvement
   2. Integrated Crop Management
   3. Mitigating Effects of Low Soil Fertility/Drought
   4. Grain Quality
   5. Sustainable Seed Systems

B. To increase the utilization of bean and cowpea grain, food products and ingredients so as to expand market opportunities and improve community health and nutrition.
   1. Health and Nutritional Attributes
   2. Consumer Attitudes and Preferences
   3. Influencing Decision Makers
   4. Urban Consumer Access to Value-added Pulse Foods

C. To improve the performance and sustainability of bean and cowpea value-chains, especially for the benefit of women.
   1. Understanding constraints to smallholder pulse farmer participation in markets and trade
   2. Identifying "weak links"/constraints in the functionality of dry grain pulse value-chains
   3. Identifying strategic public sector interventions to alleviate constraints or market failures.

Select at least one from Global Theme D; If none selected from A-C, then select at least two:

D. To increase the capacity, effectiveness and sustainability of agriculture research institutions
   1. Building and promoting partnerships with key stakeholders
   2. Strengthening regional dry grain pulse commodity research networks
   3. Training young scientists in the use of modern tools for research, management and outreach

Summary Checklist (select as many as appropriate)

- Project addresses IEHA objectives (give anticipated level of effort as % of total budget requested): 38.0%
- Project devotes at least 30% of project funds on HC capacity building activities (Global Theme D) (give total % budgeted): 53.23%
- Project involves research on biotechnology as defined in the RFP (give % effort on biotechnology): %
- Project involves the use or generation of genetically modified organisms (GMOs)
- Project involves human subject approval
- Project involves animal use approval
- Project involves M.S. or Ph.D. degree training of HC personnel (how many?): 2
Expanding Bean Supply and Demand: Identifying Constraints and New Strategies

4. Technical Approach (8 pages maximum)

Conceptual Framework

Markets are crucial to the adoption of improved varieties and management practices for pulses because they offer producing households the opportunity to specialize according to comparative advantage and thereby enjoy welfare gains from trade. Recognition of the potential of markets as engines of economic development and structural transformation gave rise to a market-led paradigm of agricultural development during the 1980s (Reardon and Timmer, 2006). Thus, the standard process of agrarian and rural transformation involves households’ transition from a subsistence mode, where most inputs are provided and most outputs consumed internally, to a market engagement mode, with inputs and products increasingly purchased and sold off the farm (Timmer, 1988; Staatz, 1994).

The attractiveness of market-oriented pulse production depends on many factors in addition to the production technology. These include the level and risk associated with pulse prices, quality premia or discounts, and costs of bringing produce to market. These factors in turn are influenced by the level of market infrastructure and institutions, broadly defined to include public or private assets such as the existence of enforceable contracts to reduce risk, formal grading systems, availability of price information, ability to reduce transactions costs through belonging to an association, physical proximity etc. The pulse markets of Angola, Mozambique, and Honduras present a continuum in terms of level of market infrastructure that can be turned into “a ladder of learning” in pulse marketing. Angola, for example, has almost no price information, production is at very low levels, and marketing channels are very unpredictable and access costly due to poor, but improving, infrastructure. Mozambique, with some 15 years of post-civil war development under its belt, has overcome some of these constraints. An effective market information system is in place, reaching over a third of all households nationally and up to 50% in some provinces. Some Mozambican farmers are able to join associations to help mitigate the marketing costs, but production for markets and market participation may be limited by lack of knowledge on quality and demand. In Honduras, market development is even further along, bringing pulse farmers within reach of profitable specialty or niche markets.

The inclusion of all three countries in a single study will help the Global Pulse CRSP better understand how different levels of market development affect the incentives for technology adoption, and help selected countries with lower levels of market development learn from those with higher levels. Thus, Angola may learn from Mozambique’s market information system how to gather, process and disseminate information on pulse prices and market outlook, while both African countries can learn from the Latin American experience with quality differentiation and entry into specialized Fair Trade markets.

This proposal addresses Pulse CRSP Topical Areas C and D for three developing countries, two in lusophone southern Africa (Angola and Mozambique) and one in Latin America (Honduras). Expansion of market opportunities for smallholder farmers to encourage productivity and accelerate the transformation from semi-subsistence to commercial farming is a key priority in all of three countries. While the project focuses on beans and cowpeas, other related pulses may be targeted by the project, if found to be important. Differences in market opportunities and
constraints will be addressed through an action research approach that enables cross-country learning.

**Problem Statement and Justification**

**Angola** Improvements in smallholder productivity and marketed surplus form a key area in the country’s poverty reduction strategy (GOA 2004) and in its economic development strategy. Dry beans (e.g., common beans and cowpeas) are the most important legume crop grown in Angola, planted on approximately 370,000 hectares in 2005/06 (FAO/WFP, 2006), and accounting for approximately 11% of the cropped area. They are grown in many parts of the country under rain-fed systems, often intercropped with maize. Yields are low, on average 220 kgs/ha in 2002/2003 and barely reaching 400 kg/ha in a good crop year. While production is recently on the increase reaching an estimated 100,000 metric tons in 2005, this growth in due to area expansion, rather than productivity gains. To meet market demand, Angola imports dry beans.

As detailed in a recent World Bank Report (2005), smallholder agriculture is beginning to shift from a subsistence orientation to more market-oriented production, and investments are being made into developing markets. Aube (2007) indicates that dry beans may be one of the high potential commodities for Angolan smallholders, both for local markets and for supermarkets in high consumption regions of the country, although local beans will have to compete in price and quality with imported beans from within the region and elsewhere. Similarly, cowpeas are an important legume crop in Angola and have unknown market potential. There are currently several NGOs working to improve smallholder production and marketing, with pulses in the production mix. For example, a proposed World Vision program with Gates Foundation support includes beans as a target crop. MSU is in discussion with WV planners concerning monitoring and evaluation on this project. The National Cereals Institute has selected dry beans and cowpeas as key commodities to include in the development of a market information system, a new initiative with potential MSU technical assistance.

A value chain approach can evaluate the key factors affecting the competitiveness of domestic dry beans, and highlights leverage points to reduce costs and/or improve the value to consumers in a coordinated manner. This value chain approach is currently found in the development strategies of the government and of other development agencies, including USAID in Angola. As indicated in USAID strategy, the capacity to conduct value chain analysis is critical. There are few trained agricultural economists in the country, and the University Agostinho Neto is currently working to develop a cadre of young professionals in this subject area, such that the project will respond to a clear need for training, as well as fill the gap in knowledge of pulses value chains. The Angolan Institute of Agricultural Research (IIA) has also indicated that market functions and constraints are a key area for research and are interested in seeing this research move forward, as a complement to their breeding program.

**Mozambique** Despite impressive headline macro-economic performance in recent years, the majority of rural households in Mozambique still experience persistent, deep poverty and high levels of food insecurity (UNDP, GOM). Besides peanuts, beans are the most important legume crop grown in Mozambique in value terms ($15 million in 2002/3). Beans and cowpeas have
considerable production potential and play an important ecological role in specific agro-ecologies of Mozambique, and IIAM has an active biological research program on yield productivity and stability (Topical Area A). Yet, to date negligible work has been done to improve the performance and sustainability of bean and cowpea value chains (Topical Area C). While the Ministry of Agriculture’s draft strategy recognizes the importance of strengthening value chains for market-led agricultural development, and identifies beans as priority crops, but no published studies of the bean subsector are available. Earlier work under the Bean/Cowpea CRSP by the University of Purdue has focused on farm-level production surveys, and a PhD dissertation is under preparation to analyze optimal bean supply based on farm input-output models. But bean production from different geographical areas in Mozambique flows into different marketsheds (e.g., central and southern Malawi, urban centers within Mozambique, and potentially South Africa), each of which has specific but not well documented preferences. Consequently, breeders do not know what varieties are well adapted to market preferences, and hence able to earn better prices for farmers. With respect to cowpeas, little is known about constraints to increasing farm-level productivity and consumer preferences.

This proposal will fill the gap using an action research approach that addresses Topical Area D by involving social and biological scientists from IIAM, staff of the national market information system, and provincial directorates of agriculture to ensure that potential opportunities to expand marketed production are seized and weaknesses in the value chain are identified and resolved. Specifically, our research will map marketsheds for the different bean production areas, identify the market preferences and premiums, and then work with breeders to test improved varieties in specific marketsheds. The goal of the activity will be to raise incomes of rural households engaged in bean production and marketing, and increase the availability of marketed surpluses for domestic consumption and export to neighboring countries.

**Honduras** With a per capita income of US$1,034 (World Bank, 2006), Honduras is one of the poorest countries in Central America, According to FAO (FAOSTAT, 2007), common beans—the most important food crop in Honduras (after maize)—are planted on 95,000 hectares (mean, 2003-05) annually. Beans, which are the main source of protein for low income families in both rural and urban areas, are grown almost exclusively by small-scale farmers who typically cultivate of less than 1 hectare. Beans are a largely grown as a semi-subsistence crop. While most bean farmers grow beans primarily to meet household needs, small-scale farmers also market their surpluses as a source of cash income (Martel, et. al., 2000). In recent years, Honduras’s bean breeding program—based at Escuela Agricola Panamericana (EAP)—has developed improved bean varieties with diseases resistance and drought tolerance, and these varieties have been widely adopted by smallholders (Mather, et. al., 2003). However, due to limited access to markets, most small-scale bean farmers sell their surpluses at the farm-gate to traders/middlemen, who pay low prices. As the Central American Free Trade Agreement (CAFTA) is fully implemented, Honduras will be required to reduce its import tariff on beans.

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1 Research undertaken in Mozambique under and earlier Bean Cowpea CRSP activity (ESA-1) is expected to result in a PhD dissertation examining farm-level cost of production analysis and potential supply response for different production zones of Mozambique. The present proposal will complement this disciplinary focus on farm-level production response and integrate results from it as they become available.

2 Manuel Filipe, PhD candidate, Purdue University, Department of Agricultural Economics, personal communication, February 1, 2008.
Consequently, as imports increase, small-scale bean farmers will face declining prices and increased rural poverty.

During the past decade, bean exports from Central America to the US have grown steadily. However, the volume of exports is still modest and exports are targeted at ethnic consumers—individuals living in the US who are of Central American origin (Zamora and Bernsten, 2004).

“Fair trade” agricultural products are commodities that meet specific standards, which specify the conditions under which they are produced (generally “organic”), are marketed with minimal involvement of middlemen, and are purchased by the US buyer at a price premium. In recent years, the US market for “fair trade” products has grown rapidly. In 2006, the US accounted for 31% of worldwide “fair trade” retail sales, valued at US$ 730 million (FLO, 2007). The rapidly increasing US demand for fair trade agricultural products (e.g., coffee, chocolate, tea, banana, mango, sugar, rice) is due to increasing consumer interest in purchasing products that benefit small-scale farmers in developing countries (TransFair USA, 2007). While “fair trade” dry beans are not currently marketed in the US, ongoing research indicated that there is a potential market for bulk dry beans among upscale US retailers (de Villa, 2007).

The project will identify new markets in the US. for Honduran grown beans, train farmers to produce “organic” beans, and establish market linkages to deliver “fair trade” beans to US markets at a price premium—thereby increasing bean farmers’ income and reducing rural poverty. The project will also enhance EAP’s capacity to implement strategies—collaborating with NGOs and the private sector—to link bean farmers to new bean markets and provide a template for producing and marketing other crops grown in Honduras and Southern Africa as “organic fair trade” commodities.

These activities support two of the CRSP’s global development themes and topical areas: C. “Performance and Sustainability of Value-Chains” (1. understanding constraints to smallholder participation in markets and trade and 2. identifying weak links/constraints in the functioning of pulse value chains) and D. “Capacity Building and the Sustainability of Agricultural Research Institutions” (1. building and promoting partnerships with key stakeholder organizations; and 3. training young scientists in the use of modern tools for research, in program management and for outreach) . The proposed research, training, and outreach is highly innovative, given that producing “organic” beans for export as a “fair trade” commodity has not been previously attempted anywhere in the world.

**Objectives**

**Angola** 1) Summarize available secondary data on bean/cowpea production and marketing over time in Angola, including identification of gaps that should be filled in future work; 2) Identify existing production areas, as well as domestic marketing channels and their marketing margins for beans/cowpeas; 3) Identify constraints, opportunities and potential pilot interventions to improve competitiveness of domestic production of beans/cowpeas; and 4) Work with NGOs, the Ministry of Agriculture and Rural Development, and IIA to implement pilot interventions, including an a agricultural market information systems (AMIS) with bean/cowpea information.
Mozambique 1) Analyze spatial and temporal patterns in bean/cowpea production and marketing using nationally representative agricultural survey data for 2002, 2003, 2005 and 2006, differentiated by household head gender; 2) Map the marketsheds for different bean production areas of Mozambique, document the market preferences, and work with breeders to test varieties with desirable market characteristics to improve competitiveness of beans/cowpeas in the principle production agro-ecologies; 3) Undertake econometric analysis of the determinants of market participation by bean/cowpea producing households with household head gender as an explicit explanatory variable.

Honduras 1) Identify markets in the US for “organic fair trade” common beans, including the grades and standards required by these markets; 2) Validate via field trials existing agronomic recommendations for growing “organic” beans; 3) Train smallholder farmers to produce “organic” beans that meet the grades and standards required by US retailers; 4) Establish local market linkages required for small-scale bean farmers to export “organic fair trade beans to US markets and initiate exports of “organic fair trade” beans to US retailers.

Approaches and Methods

Angola This value chain research is based on subsector analysis. For Objective 1, researchers will bring together the secondary information on production aspects found in project reports and government documents, but currently not easily available. Secondary data will be used to document trends in production, marketing, trade, consumption, and other aspects. Information gaps will also be identified to ensure that future data collection efforts with national household surveys and other efforts fill in these gaps.

For Objective 2, researchers will interview key subsector participants (e.g., bean/cowpea agricultural scientists, traders, processors, importers/exporters, NGOs, food security experts) to develop the value chain diagnostic. In addition to more quantitative information costs and activities, these participants will be asked to identify information needs to improve performance, as well as other possible constraints to growth of the subsector, thus contributing to Objective 3.

To meet Objective 3, the market research with traders and other needs to be combined with information from smallholders. Given the lack of current data, smallholder surveys of bean/cowpea producers in selected current production areas will be used to assess current farmers and farming practices (e.g., socioeconomic characteristics of producers, including gender, varieties planted, preferred varietal traits, seed source, planted area, yields, access to credit, sales, prices received, disease/pest constraints). These surveys will identify farmers’ current marketing strategies, if any, as well as sources of information on trade and transport, thus providing information of the linkages between smallholder farmers and other parts of the value chain for beans/cowpeas. Objective 3 will be met from a combination of information from agents along the value chain. Both the subsector analyses and the farmer surveys will be carried out as a multidisciplinary activity—agricultural scientists from the Angolan Institute of Agricultural Research (IIA) (e.g., breeders, agronomists, soil scientists) and market participants will be involved in designing and implementing these studies and interpreting the results. Given the potential role of market information, researchers will work with public sector agents developing an AMIS, such that the AMIS can best meet the needs of the subsector. Other
potential interventions will be identified that can improve competitiveness, possibly focusing on storage and seed systems-related issues.

The MS thesis research will thoroughly document the value chain, thereby providing a framework for examination of other value chains in Angola. The thesis research will provide an opportunity to estimate the benefits of information and other market facilitation to reduce costs and increase the quantity of marketed beans/cowpeas.

**Mozambique** The objectives will be achieved through a multidisciplinary action research approach that engages stakeholders from public, private and NGO sectors in a bean/cowpea task force. The task force will have input to the design of activities and receive regular feedback on findings. Key members of the task force will include social scientists from IIAM/CESE, biological scientists from the bean/cowpea program (IIAM/DARN) and the key zonal research centers, the national market information system (SIMA), private sector bean/cowpea traders, and the national Directorate of Economics of the Ministry of Agriculture.

Objective 1 will be achieved by detailed spatial analysis of the existing national agricultural survey databases (the Trabalho de Inquerito Agricola, or TIA). Production and marketing data will be presented in both tabular and GIS mapping formats.

Objective 2 will be achieved through a combination of focus group discussions with smallholders in the main agro-ecology and rapid appraisal of market participants during the marketing season. The rapid appraisal will be carried out jointly with staff of the national market information system (SIMA) and integrated with the annual market outlook field survey. Focus group discussions with smallholders will include access to input markets, with an emphasis on seed, as well as outputs markets.

Objective 3 will be achieved through MS thesis research, using econometric analysis of the TIA data sets. Panel data econometric analysis for 2002 and 2005 that resolves household-specific endogeneity will be compared with pooled cross-section results for all years.

**Honduras** These objectives will be achieved through collaborative action research to be carried out by staff at Escuela Agricola Panamericana and Michigan State University.

Objective 1 will be achieved by contacting major US distributors/retailers of “organic fair trade” commodities (e.g., Whole Food Markets, Sam’s Club, United Natural Foods) to identify interested private sector partners/buyers, determine the grades and standards (including third-party certification) that they require, and negotiate purchase commitments (e.g., volumes, prices, payment terms, delivery dates, packaging requirements). US-PI Richard Bernsten will be responsible for implementing this objective.

Objective 2 will be met by first identifying bean farmers/village research committees (CIALs) interested in producing “organic” beans, identifying NGOs interested in collaborating on the project, selecting farmer collaborators, training the farmers to produce “organic” beans, and conducting on-farm trials to validate the agronomic recommendations that bean scientists at EAP have developed for producing “organic” beans. Results of these trials will be used to modify
existing “organic” bean-growing recommendations. Over the past decade, EAP’s bean program has collaborated with small bean farmers, village-level research committees (CIALs), and agricultural NGOs in field testing promising bean lines, seed multiplication, and participatory plant breeding. The proposed activities are complementary to EAP’s prior efforts to involve small farmers in activities to increase productivity. HC-PI Dr. Juan Carlos Rosas will be responsible for implementing this objective.

Objective 3 will be achieved by scaling up the activities noted in Objective 2 to include a sufficient number of farmers (hectares of beans) to supply the volume of production required in order to supply the markets identified in Objective 1. HC-PI Dr. Juan Carlos Rosas will be responsible for implementing this objective.

Objective 4 will be achieved by contacting private market participants and NGOs in Honduras in order to establishing the required market chain linkages (e.g., third-party certification that the beans meet “organic fair trade” standards; grading, processing, and packaging the beans; transporting the beans to the port; and contracting with a commodity exporter for shipping to the US). The HC-PI and US-PI will be jointly responsible for making these marketing arrangements.

In year 3, lessons learned from implementing this initiative will be potentially extended to Guatemala, targeting other market classes (e.g., black, and non-\emph{Phaseolus vulgaris} dry bean species--e.g., \emph{P. coccineus} and \emph{P. dumosus}, which are grown by indigenous populations in the Guatemalan highlands). In addition, lessons learned will provide insights regarding the potential for Angola and Mozambique to produce and market “organic fair trade beans” in the US or Europe. The project action research agenda--designed to introduce a new value-added staple food product into the US supply chain by enhancing the local capacity to produce “organic fair trade” beans and develop market linkages required to export “organic fair trade” beans to the U.S.--is unique.

**Collaboration with Host Country Institutions**

The project will be implemented jointly by the three US Principal Investigators (PIs--Angola, Donovan; Honduras, Bernsten; and Mozambique, Boughton), in collaboration with the HC-PIs in the respective host countries (Angola, Kiala; Mozambique, Mazuze; Honduras, Rosas). Due to their prior involvement in the target countries, the US-PIs are familiar with key institutions and have ties to key scientist in each target country.

**US-PIs.** The US-PIs have extensive experience in conducting applied research in both Southern Africa and Latin America. In the late-1980s, Bernsten served as Co-Director of MSU Food Security Project in Southern Africa (based at the University of Zimbabwe), has for the past 10 years conducted research on constraints to increasing bean production and marketing in Central America (in collaboration with Honduras HC-PI Rosas), teaches a graduate-level course on survey research methods, and has supervised over 40 MS/PhD theses/dissertations (including Mozambican HC-PI Mazuze). Boughton, who is currently the Co-Director of MSU’s Food Security Group, has 25 years of professional experience in collaborative research, capacity building and project management in Sub-Saharan Africa—including long-term assignment in the Gambia, Malawi, and Mozambique (1998-2004). Since 1981, Donovan has conducted research,
training, and outreach in developing countries. For the past seven years, her activities have focused on research, training, and policy dialogue regarding Mozambique, Zambia, and Rwanda in the areas of HIV/aids and agriculture, market information systems, impacts and management of food aid as related to local markets, and the use of household surveys for policy analysis.

**Angola** The action research project will be coordinated by HC-PI Dr. David Kiala, University Agostinho Neto, in collaboration with US-PI Donovan. Key public and private sector participants will include a multidisciplinary team of researchers from the University Agostinho Neto, Faculty of Agricultural Sciences at Huambo and biological scientists from the bean program of Instituto de Investigação Agronómica (IIA) in Huambo, the US (UPR) and HC-PIs of the new Pulses CRSP bean breeding project that will be implemented in Angola, analysts from the Food Security Office, Ministry of Commerce specialists in agricultural markets, and development specialists from Chevron and other agencies actively supporting the development of markets for food staples. The US and HC-PI will jointly identify a staff member for MS training in Agricultural Economics at the University of Pretoria. Combining efforts with market information initiatives, the US-PI will travel to Angola and be active with the Angolan HC-PI and MS candidate in helping to design the thesis research. Frequent communication through e-mail and telephone, in English and Portuguese, will enable the iterative program development needed in a changing economic environment.

**Mozambique** The action research project will be coordinated by the Socio-Economics Unit (CESE) of IIAM and the HC-PI Mr. Feliciano Mazuze (head of CESE) in collaboration with US-PI Boughton. CESE, a unit within IIAM’s Directorate of Training, Documentation and Technology Transfer (DFDTT), has strong linkages with the extension service of the Ministry of Agriculture. Michigan State University’s Department of Agricultural Economics is already collaborating with CESE/IIAM through a Cooperative Agreement with USAID Mozambique that is expected to run throughout the life of the current proposal (i.e., through September, 2010). MSU’s in-country Director, Dr. Gilead Mlay will facilitate communication between CESE and US (Boughton) and assist in supervision of in-country activities. Researchers in CESE have good linkages with the market information system (SIMA) located at the Ministry of Agriculture’s Directorate of Economics. In addition, the project will collaborate with the US (Penn. State) and HC-PIs of the new Pulses CRSP bean breeding project that will be implemented in Mozambique. The US and HC-PI will jointly identify a staff member of CESE for MS training in Agricultural Economics at Michigan State University.

**Honduras** The action research project will be coordinated by EPA, under the leadership of HC-PI Dr. Juan Carlos Rosas in collaboration with US-PI Bernsten. Dr. Rosas (Director of EAP’s bean research program) has extensive experience in managing research and outreach activities designed to benefit smallholder bean farmers and has collaborate with Bernsten in implementing bean-related research in Honduras. The project will draw on the expertise of faculty at EAP who have implemented action research designed to develop local markets value-added agricultural product and on the expertise of MSU faculty who have conducted similar research (e.g., MSU’s Product Development Center and the Partnership for Food Industry Development, a USAID funded project that led projects to develop export markets for horticultural products from developing countries, including Guatemala).
Benchmarks

Outputs for the 30 month project will include:

**Angola**
- a research working paper that provides an overview of the bean/cowpea subsectors, with the results of a rapid appraisal of the value chain, including an evaluation of the relative role for domestic bean/cowpea production in the face of regional imports;
- a research working paper that identifies constraints to increased smallholder productivity and market participation for beans/cowpeas, linked to the earlier value chain analysis;
- a MS thesis, a working paper, and a policy brief identifying the key leverage points in the bean value chain, the value of improved market services in that value chain, and the interventions that can ensure that when constraints to bean productivity are addressed, the increased production will find market opportunities with sustained producer incentives.

**Mozambique**
- a research working paper (subsector analysis) and a policy brief that address objectives 1 and 2 above, providing an overview of the bean/cowpea subsector and identifying gender-differentiated constraints to increased smallholder productivity and market participation for beans;
- in-service training for recently recruited CESE socio-economists in focus group interviews and market appraisal that can be applied to other commodities after completion of the project;
- collaboration between CESE and SIMA to identify bean/cowpea marketsheds and associated market preferences;
- a MS thesis, a working paper, and a policy brief quantifying the determinants of smallholder market participation, and hence constraints that need to be relaxed to ensure broad-based participation by households with differing asset portfolios.

**Honduras**
- identification of markets in the US for “organic fair trade” beans;
- validation of agronomic practices for growing “organic” beans;
- training of smallholder farmers to produce “organic” beans;
- establishment of market linkages for marketing “organic fair trade” beans in the US;
- export of “organic fair trade” beans from Honduras to the US; and
- a working paper documenting the project’s successes and constraints associated with producing “organic” beans and gaining access to the “organic fair trade” market in the US.

An implementation timeline with specific progress indicators is presented in Table 1
## Table 1  Implementation timeline and specific indicators by country

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<tr>
<th>Period</th>
<th>Angola</th>
<th>Mozambique</th>
<th>Honduras</th>
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| Apr. – Sept. 2008 | - Prepare detailed workplan  
- Present workplan to the stakeholders  
- Identify MS candidate  
- Collect secondary data on bean/cowpea production and marketing  
- Establish baseline on bean/cowpea market and market information  
- Campus enrollment for MS candidate | - Prepare detailed workplan  
- Present workplan to task force  
- Identification of MS candidates  
- Spatial and temporal analysis of bean/cowpea production and marketing data (TIA)  
- Campus enrollment for MS candidate | - Prepare detailed workplan  
- Identify US markets for OFT beans, secure commitment from US retailer to purchase OFT beans, identify third party certifiers,  
- Identify farmer groups/ CIALs/ NGOs for producing OFT beans; conduct on-farm trials to validate organic agronomic. |
| Oct. 2008 – Sept. 2009 | - Focus group discussions with smallholders  
- Presentation of initial diagnostic results to stakeholders  
- Report on Rapid Appraisal of bean/cowpea marketing channels  
- Stakeholder/task force discussion of potential market information/services interventions and identify priorities  
- Publish working paper  
- Complete year 1 MS course work | - Focus group discussions with smallholders  
- Rapid Appraisal of bean/cowpea marketing channels  
- Present initial diagnostic results to task force & provincial dir. of agriculture staff  
- Identify pilot production and/or market interventions with SIMA & private sector/NGO stakeholders  
- Publish working paper on bean/cowpea subsector appraisal  
- Complete year 1 MS course work | - Scale up project to supply the requirements of the US market  
- Establish local market linkages for exporting OFT beans  
- Export OFT beans to the US |
| Oct. 2009 – Sept. 2010 | - Continue observation of bean/cowpea market developments & revisit baseline market communities  
- Complete MS course work & thesis  
- Present results to stakeholders/task force | - Implement pilot interventions & 2nd round focus group discussions with smallholders & market participants on impact & scaling up issues  
- Present pilot intervention results to task force  
- Complete MS course work & thesis. | - Further scaling up to supply the growing US market for OFT beans  
- Working paper/journal article documenting project’s successes/constraints  
- possible extension to Guatemala, targeting other market classes |
**Benefits:**

**Angola** Benefits from the project are the following: 1) Help to guide private and public investments in the bean/cowpea value chain, which will enable more smallholder farmers to participate in these markets, thereby increasing their income earned from dry beans; 2) Increased availability of dry beans; 3) Increased capacity of the University to respond to research needs in the agricultural sector, with a trained agricultural economist. It is anticipated that the research in Honduras on producing and exporting “organic fair trade” beans will provide insights regarding the possibility of implementing a similar initiative in Angola.

**Mozambique** Benefits from the outputs are the following: 1) Direct benefits to bean/cowpea-producing households through increased incomes and market participation; 2) Indirect benefits to rural and urban consumers through increased availability of dry beans; 3) Increased capacity of IIAM in socio-economic analysis of commodity production and marketing systems; 4) Increased capacity of IIAM to involve private and NGO sectors in value chain development to accelerate uptake of improved production and storage technologies. It is anticipated that the research in Honduras on producing and exporting “organic fair trade” beans will provide insights regarding the possibility of implementing a similar initiative in Mozambique.

**Honduras** Benefits from the outputs are the following: 1) Validation of agronomic practices for producing “organic” beans; 2) Direct benefits to the participating farmers who produced “organic fair trade” beans (i.e., higher price for their crop, resulting in a higher income); 3) Increased capacity at EAP to implement initiatives designed to produce and market “organic fair trade” commodities; 4) Increased capacity at EAP to involve private and NGO sector participants in value chain development that benefit smallholders.

5. **HC Institutional Capacity Building**

The project will provide opportunities for training through mentoring of young collaborating scientists by the US-PIs, formal degree (MS) training and in-service short courses (e.g., SPSS training, survey research methods short course). In addition, the project hopes to sponsor cross-country site visits for collaborators from Angola and Mozambique.

**Angola** The University of Agostinho Neto, Faculty of Agricultural Sciences is based in Huambo, but with a national effort for agricultural training and research. Agricultural commodity value chain research is a new area, with high demand, which will complement the established training and research in production issues. Linkages with the Faculty of Economics as well as the Policy and Food Security Units of the Ministry of Agriculture and Rural Development will help to establish local capacity for agricultural value chain analysis, capable of addressing the information needs in coming years. One graduate student will be enrolled in the MS program (agricultural economics) at either the University of Pretoria or the University Kwa-Natal, programs known for their applied analysis. The goal is to develop a set of trained analysts in market analysis, to build on this MS program, and MINADER and others have indicated their priority for applied economics training.
**Mozambique** The Socio-Economics Unit (CESE) was formally created as part of the new Mozambican research institute (IIAM) in 2006. The unit consists of a head (MS level) and six BS-level analysts of whom two are based at headquarters and four are located at two zonal research centers. An additional five analysts are in the process of being recruited to staff the additional two zonal research centers that do not currently have social scientists. The proposed project will be integrated into the formal and in-service training program for newly recruited CESE staff, at least one of whom will be posted to the northwest zonal center responsible for the major bean producing agro-ecology. One graduate student will be enrolled in the MS program (agricultural economics) at Michigan State University. This proposal complements and extends activities funded by the USAID mission in Mozambique which has encouraged MSU to seek additional resources for FY09 and FY10.

**Honduras** EAP’s bean program has a long history of collaborating with farmers in research and outreach activities. However, EAP’s bean research and outreach have focused on increasing productivity of beans, under the assumption that beans are a staple crop. In contrast, this project targets beans as a value-added crop (i.e., “organic fair trade” beans). As such, the project will enhance the bean EAP’s capacity to conduct value-added research and outreach by involving staff in implementing action research designed to produce “organic beans” and identify new markets for beans as a value-added crop. While no formal training is proposed, EAP staff will gain expertise via participating in the proposed research, outreach, and market development activities.

**6. Contributions to USAID’s Objectives and Initiatives**

Mozambique is a priority country for IEHA and the USAID mission strategy is closely aligned with IEHA, focusing on increased rural incomes through productivity growth and market access. The current proposal is aligned with these goals and focuses on IEHA pillars 1, 2 and 4. Although Mozambique has not yet inaugurated its CAADP process the current proposal addresses CAADP pillars 2, 3 and 4. The research undertaken will also be relevant to the COMESA regional food staples trade program since Malawi, as well as other potential neighboring trade partners are COMESA member countries. The project design explicitly considers market access for female-headed households and contributes to environmental sustainability by providing a nitrogen-fixing intercrop and/or rotation crop where maize is the principal cereal staple and fertilizer access and use is still very limited. The USAID mission staff will be engaged prior to and throughout workplan development. During the implementation phase mission staff will be kept informed by the MSU country Director in Mozambique who reports to and meets with USAID staff on a regular basis. In Angola, the USAID Strategic Plan focuses on market development and smallholder productivity enhancements, and is linked with Global Development Initiatives, including the joint work with Chevron on smallholder marketing. Mission staff will be included in workplan development and possible geographic targeting of the project. Research activities conducted in Angola and Honduras will contribute indirectly to IEHA objectives in Mozambique through cross-country learning in an action research approach to value chain development.
7. **Strategy for Achieving Development Impacts**

**Angola** Based in the national University, the project is well-placed to provide the basis for a cadre of agriculturalists with the training in applied economics to meet the local demand for information and analysis on a range of commodities. University faculty will be able to replicate the research methodology for other commodities and train young scientists. Project outputs will be available in both Portuguese and English, ensuring a broad reach within the country and within the region. Both the MINADER and IIA are interested in this research and outreach will be planned with both agencies.

**Mozambique** Project outputs will contribute directly to the development outcomes and impacts in Mozambique through their alignment with host country priorities, full integration with host country institutions and workplans, and involvement of implementation agents in the task force from project inception (private sector, provincial directorate of agriculture, NGO). Also, the host country implementing unit belongs to IIAM’s Directorate of training, documentation and technology transfer (DFDTT) that will facilitate linkages and dissemination of materials through its zonal offices and website.

**Honduras** Project outputs will provide direct benefits to small-scale farmers and EAP. By collaborating with small-scale farmers, local NGOs, and private sector participants, the project will validate recommendations for growing organic beans, implement a strategy for scaling up production of value-added beans, and export these bean to the US. These activities will have a transformational effect on bean marketing and increase the incomes of small-scale bean producers. Also, the project will enhance the capacity of the host country institution to conduct action research.
Appendices
Appendix 1: Curriculum Vitae of key personnel
Appendix 2: Letters of Willingness to Collaborate
Appendix 3: Plan for leveraging additional resources towards project objectives

**Angola** The project in Angola will be leveraging Angolan government resources from the University of Agostinho Neto, Faculty of Agricultural Sciences. Production training and research at UAN is funded publicly, and the salaries and facilities of staff will provide a basis for the project operations. The Bean Program at IIA is also publicly funded and their participation will be sought in this training/research. MINADER has indicated strong interest in establishing market information services using public sector funding, and the project will be able to link with that work, as both the project and MINADER will use the rapid market appraisal methodology and results. Given the investments in smallholder market development by private sector agents, including Chevron, the project seeks to tie in with those efforts in specific areas of operations.

**Mozambique** Public sector funding through the common-fund mechanism PROAGRI contributes substantially to the development of this research and training program. That funding provides the salaries and facilities for the CESE staff members, including the HC-PI in Mozambique. In addition, MINAG funds through PROAGRI funds the Bean Program of IIAM. That National Directorate of Economics and the provincial MINAG offices support both the national household surveys (TIA) and the market data collection of the Agricultural Market Information System (SIMA), through public sector funding. Rockefeller Foundation is supporting the local MIS in one of the high bean potential areas, a leverage point for innovation market information efforts.

**Honduras** The project will work with EAP’s stakeholders from the private sector (processors and exporters), NGO and public sectors, to leverage resources in the form of expertise to guide project implementation and enable the promotion of fair trade certified organic beans during the scaling up phase. Experience with leveraging resources in this manner will also be borrowed from neighboring countries with more commercialized marketing systems.
Appendix 4: Additional Background Information

**Mozambique** *Phaseolus vulgaris* is commonly known as “butter bean” in Mozambique, and the value of production amounted to over $15 million in 2002-03 (Walker et al, 2006). Unlike cowpeas, butter beans fetch high market prices in Mozambican markets and they are mainly grown as a cash crop. Aggregate national production approaches 40,000 tons, but the geographical concentration of production in the higher altitude areas of northwest Mozambique results in a relatively high mean household production of butter beans - about 135kgs to 290 kgs in the 2001/2 and 2002/3 seasons respectively. The geographical concentration of production, combined with domestic and regional marketing opportunities (particularly Malawi), means that butter bean can make a dent in the level of absolute poverty in the principal agro-ecological zone where it is grown (Walker et al, 2006).

**Angola** Coming out of a long-standing civil war, Angola has poorly developed infrastructure and very low agricultural productivity spread across a large area. However, it has the benefit of oil revenues, such that the public sector has the resources to invest in rural infrastructure and in improving agricultural productivity such that rural households can participate in the market economy and gain the benefits from long-term investments in agriculture. Local agricultural products must compete with imports for a wide range of products, a problem particularly challenging given the high oil revenues and potentially high domestic production costs relative to imported goods. The government’s Poverty Reduction Strategy focuses on the role of agricultural development to encourage rural residents to stay on farms and attain higher incomes through agriculture and non-farm sources related to agriculture (GOA 2005). Under these conditions, agricultural-sector research has a key role to play in the allocation of resources.

As detailed in a recent World Bank Report (2005), smallholder agriculture is beginning to shift from a subsistence orientation to more market-oriented production, and investments are being made into developing markets. One such effort is the PRESLIDE (Program to Restructure the Logistical and Distribution System for Essential Commodities, *Programma de Reestructuração do Sistema de Logística e de Distribuição de Productos Essenciais à População*) of the Angolan Ministry of Commerce. PRESLIDE focuses on modern market development, linking rural production by small and large scale farmers to urban consumption markets. A key feature of this work is to improve rural incomes such that the rural areas provide livelihoods that attract the young. The Food Security Office of the Angolan Ministry of Agriculture and Rural Development (MINADER) is also working to assess the needs to link farmers to markets more effectively, the ensure that production incentives and market efficiency ensure food security based on domestic production. Their efforts to establish a market information system link with a National Cereals Institute initiative along the same lines. For the University Agostinho Neto Faculty of Agrarian Science and the Angolan Institute of Agrarian Research (known as IIA), research on productivity linked to market development for the increased marketed surplus is recognized need. Looking at dry beans, the domestic market for beans is large, and imports are still used to augment supplies in the country. Domestic marketed production could increase, however if there are not good market linkages, increases in marketed surplus could face low prices in segmented, saturated markets. Recent work with Irish potatoes demonstrated such a difficulty, with production expanding faster than local market capacity (Aube 2007).
Appendix 5 Literature Cited


Agricultural Survey Data. IIAM-DFTT Research Report No. 3E. Maputo: Instituto de Investigação Agraria de Moçambique (IIAM).
