

## **Access to Modernizing Value Chains by Small Farmers in Indonesia and Nicaragua**

A Proposal to the BASIS CRSP, January 2007

**Contracting Institution:** Michigan State University  
East Lansing, MI, USA

**Principal Investigator:** Dr. Thomas Reardon  
Professor  
Department of Agricultural Economics  
319 Agriculture Hall  
East Lansing, MI 48824 USA  
Telephone: 517-974-1707; Fax: 517-432-1800  
Email: reardon@anr.msu.edu

**Collaborating Institutions:** Padjadjaran University (Bandung, Indonesia)  
Central American University (Managua, Nicaragua)

**Co-PIs:** Dr. Ronnie S. Natawidjaja  
Center for Agricultural Policy and Agribusiness Studies (CAPAS)  
Padjadjaran University  
Jalan Sekeloa Selatan I, Bandung 40321, Indonesia  
Telephone: +62-22-2532899; Cell: +62-812-2015020  
Email: ronnie\_sn@yahoo.com

Mr. Francisco J. Perez  
Research Program/Institute Nitlapán  
Central American University  
Campus, Managua, Frente a Radio Ya, Nicaragua  
Telephone: (505)2781343/44 2780627/28; Fax (505) 2670436  
Email: fjperez@ns.uca.edu.ni

**Project dates:** May 1, 2007 – April 30, 2011

**Total project budget:** \$704,693, of which \$599,942 requested from BASIS

## Table of Contents

Abstract	3
Proposal Narrative	
1. Research Issues	4
2. Research Questions and Hypotheses	6
3. Research Activities and Methods	7
4. Policy and Development Program Design	12
5. Current Capacity and Proposed Capacity Building	17
6. Contributions toward USAID Mission Objectives and Programs	22
References	24
Anticipated Outcomes	25
Benchmarks	28
Project Timeline	30
Budget	
Overall Summary	33
Detailed Budgets	35
Budget Narratives	38
Researchers' Qualifications	42
Curricula Vitae for Principal Investigators	
Reardon	47
Natawidjaja	52
Perez	56

## Abstract

The project will examine the asset-related determinants and the impacts of the participation of small farmers and small-farmer organizations in modern versus traditional market channels in Indonesia and Nicaragua. The research comprises: product value chain studies of beans and plantain in Nicaragua and mangoes and mangosteen in Indonesia; panel and cross-section farm household surveys of 3000 farmers between the two countries; and, case studies of small farmer organizations, retailers and wholesalers, and wholesale markets, and rapid rural appraisals. The outreach comprises stakeholder and policy workshops and learning alliances. The capacity building comprises degree training in the US and in the study countries, collaborative research, and rural training workshops; a key goal is to build on and up the unique research/training/development/outreach natures of the collaborating institutions, toward there being replicable, regional centers of excellence. The work is closely integrated with and informs immediate policy debates and development programs of host-country governments and USAID missions. The research is collaborative among the PI institutions (CAPAS [The Center for Agricultural Policy and Agribusiness Studies] at Padjadjaran University in West Java, Indonesia; Nitlapán, an Institute of the Central American University in Managua, Nicaragua; and, Michigan State University), and with Cornell as non-PI collaborators.

## **Project Narrative**

### **1. Research Issues<sup>1</sup>**

The agrifood industry (including retailing, wholesaling, and processing) has transformed extremely quickly and profoundly over the past decade in developing regions. There has been rapid diffusion of supermarkets, fast food chains, modern specialized/dedicated (to modern channels) wholesalers, and large-scale processors. These trends have been intense in Central America and Southeast Asia, including in our study countries of Nicaragua and Indonesia.

With rising competition, the modern food industry actors have initiated the development of modernized procurement systems (such as centralized, integrated procurement systems, global and regional procurement, the use of implicit contracts and private standards, the use of “new generation” specialized/dedicated wholesalers who manage supply chain governance, and have moved gradually away from traditional market channels’ reliance on spot markets and traditional brokers that dominated traditional product value chains). Extensive pioneering recent work has been done in the past five years by the project team and collaborators (as well as other researchers) on documenting both the food industry transformation and the concomitant emergent procurement system change, as well as its domino effects upstream in the agrifood system structure. (An example is Berdegue et al. 2005 for Central American horticultural supply chains.)

However, a major gap in research concerns whether and how the restructuring of product value chains, driven by food industry transformation, is affecting small farmers’ access to markets, assets, and incomes. There has been some initial work toward filling this major gap, the

---

<sup>1</sup> This section summarizes points made and literature reviewed extensively in Reardon and Timmer (2007), with extensive references omitted here because space limitations.

addressing of which is crucial to design of policy interventions to assist the poor in accessing dynamic markets.

Most attention has been paid to the process already intensively underway in the 1980s and early 1990s, that of agroexport booms since the start of globalization and market liberalization. For example, Carter et al. (1996) show that these booms had limited “inclusion” effects on small asset-poor farmers in Latin America.

Second-most attention has been paid to the effects of the transformation of agro-processing on small farmers, such as the extensive work on this topic in the late 1980s and early 1990s for example in Latin America by CEPAL and others, and by Swinnen and colleagues in Central and Eastern Europe in the dairy industry. This work tended and tends to find a very mixed story, very conditioned on the structure of the farm sector, quality demands by consumers, and degree of restructuring of the processing sector, among other factors. For example, Swinnen and colleagues find small farmer “inclusion” in dairy sector restructuring in Poland, while Farina and colleagues at the University of Sao Paulo find sharp and extensive “exclusion” of small dairy farmers in that process.

By contrast, extremely little work has been done to date on the restructuring of the wholesale and retail sectors in the domestic agrifood economies of developing countries in the past decade, despite now strong evidence of the deep restructuring. The scant new evidence emerging is, however, troubling. For example, recent work by members of our project team on tomato growers and transforming markets in Guatemala, Indonesia, and Nicaragua show that, unassisted, asset-poor small farmers are “excluded” from modern channels the governance of which is dominated by modern, specialized/dedicated wholesalers and supermarkets. Only asset-adequate small farmers are included. This new evidence is enough to have already made this

issue of high interest to policymakers in the study countries and beyond, as it impinges directly on the debates about how to design asset-building and market access programs and policies for poor farmers. But the recent studies are enough to create strong demand for this information but not answer a host of specific questions. These questions, stated in the next section, then become our research questions informing our field research, outreach, and training activities in the project. The study countries are Indonesia and Nicaragua. Both countries have horticulture sectors highly dominated by small farmers, are tropical, and have recently experienced rapid food industry restructuring, but allow an Asia-Latin America comparison and south-south learning opportunities. Our study products include beans, plantains, mangos, and mangosteens, hence covering a range of broad commodities and niche products.

## **2. Research Questions and Hypotheses**

The questions cover the range of categories of food industry transformation (hence, export market, retail, wholesale, and processing sector transformation) facing small farmers, as all of them are relevant in our study countries.

The first set of research questions comprises the specific extent and nature of the restructuring of the product value chains, and what are the determinants of that restructuring. To what extent is the restructuring (such as change in procurement institutions and organization, as discussed above, and the extent of consolidation and multinationalization) driven by export or domestic retail transformation, and how do government policies condition that restructuring?

The second set of research questions comprises the determinants of participation (hence inclusion or exclusion) of small farmers in the restructured market channels. What specific roles do the range of assets play, both as to types, and as to threshold investments needed to meet the requirements of the restructured value chains? How do small farmers' organizations, including

their specific design, condition that participation? How do USAID and government policy and development programs condition that participation?

The third set of research questions comprises the asset and income effects of market participation, in the modern versus traditional channels. What are the costs and benefits, including risks, of participating in the differential channels?

The determinants hypotheses to test in the project are that assets, organizational design, and policy and institutional design are key determinants of inclusion. The specific hypotheses are a function of the product, country, and setting. The outcomes hypotheses to test are that participation in modern channels provides net benefits and lower risk than in traditional channels.

The final set of questions comprises policy implication questions. What are the program and policy design implications for effective government and donor actions (such as extension, irrigation investments, and so on) and private programs to address challenges facing small farms and firms seeking to be “included” in the restructured markets? What are technical assistance activities that, if replicated in part or in whole, would assist government/donor/private sector in profitably linking small farmers to the restructured markets?

The answers to those questions will result in better designed policies, programs and technical assistance projects.

### **3. Research Activities and Methods**

The research activities in each country in general consist of: (1) key informant interviews with supermarkets, wholesalers and selected smallholder farmers or farmer organizations along the product value chains noted below; (2) field surveys of farmers participating in various market channels (including to: (a) export markets directly or through specialized wholesalers, (b)

processors (modern or traditional), (c) directly to supermarkets, (d) specialized/dedicated wholesalers for supermarkets, (e) “transition” category wholesalers (modernizing traditional wholesalers), and (f) traditional wholesalers and brokers); (3) focus groups with farmers associations, women entrepreneur groups, and other stakeholders, as well as participatory rural appraisals (PRAs) to understand the policy, organizational, institutional, and socio-cultural context of the study areas and the constraints and opportunities in the markets and at production level perceived by the actors in the chains.

Our project has a solid balance among academic-oriented research and outputs targeted toward local and global policy-making communities. Our team has a strong research publications record, including significant publications for both disciplinary and interdisciplinary audiences. We plan to publish several journal articles and perhaps a book from this project. But we also put high priority on direct outreach and dissemination of research results to lay decision makers through policy briefs, networks, and workshops intended for policymaker and community audiences in the region. The research components of the country studies and comparative study are discussed in this section, and the outreach/dissemination and training activities are discussed in subsequent sections.

### **3.1. Indonesia Research Activities**

In Indonesia, supply chain mapping studies will be undertaken for mangoes and mangosteen. Both are priority products in the Ministry of Agriculture’s long-term development plan and have strong market potential for domestic as well as export markets. The national-level segments of the supply chain will be studied in the main urban zone, the greater Jakarta area. The local-level segments will be studied in West Java, the province of the collaborators’ university, and also the main production zone (with about a third of national production) for mango and mangosteen in

Indonesia, as well as the second production zone of mangoes (East Java province) and mangosteens (West Sumatra province). Village and wholesale market and off-market wholesaler surveys will be conducted in a sample of districts with the greatest production of the products. Case studies will be drawn from interviews with modern retailers, the food and beverages industry, agriculture exporters, import companies, inter-island traders, wholesalers in the large traditional central markets, as well as farmer associations, women entrepreneur groups, and government offices.

The Indonesian rural household survey will be conducted in two provinces (with several districts in each) for mango, and two for mangosteen. The questionnaire will cover marketing, production, household and individual characteristics, assets, and incomes. The household sample (500 households in each of the mango and mangosteen study areas, hence 1000 households in all) will be selected with two-stage cluster sampling. To understand the context (current and recent-historical), and to identify instrumental variables, 10 PRAs at the sub-district level with farmer groups, associations, traders, and community leaders will be undertaken in each province for each product, hence 40 PRAs. Focus group sessions will be conducted with supply chain actors. A national-level workshop will be done to obtain feedback on the study design.

### **3.2. Nicaragua Research Activities**

In Nicaragua, there are two study zones. The first is the plantains study area, in districts in the rainfed lowland humid zones of the departments of Rivas, Ometepe, Leon, Chinandega, and Granada. The second is the dry beans study area, in rainfed semi-arid zones at a variety of elevations in the departments of Nueva Segovia, Matagalpa, Leon, Estelí, and Boaco.

Two pre-field survey workshops will be undertaken in Managua with policy makers, key community-level stakeholders (survey participants) and with stakeholders in the value chains of

interest, including women entrepreneur groups, wholesalers, retailers, input suppliers, and small farmer organizations. The goal is to share the project objective goals and the design of the project and to receive feedback on suitable ways to communicate results back to end-users, and concerns of the project's approach.

There will be two field surveys of households, the first July-August 2007 and the second February-April 2008. The questionnaires for the two surveys have in common the general categories of questions on assets, production, marketing, participation in organizations, access to services such as credit and technical assistance, and other household and individual characteristics and incomes.

The first household survey of 660 bean farmers and 350 plantain farmers, will collect data for the current period as well as a recall of five years for behavior and five and ten years for assets. Price and other context data will be collected through village surveys in the study zones. The information collected at the farmer/household level, will be useful to map the type of technologies, markets segments, and types of households who have access to dynamic markets (supermarkets, export markets, and modern wholesale and processing) versus traditional markets. An important goal of the recall is to determine what assets (human, organizational, physical, financial, social capital) were held before entering the dynamic market channel, to infer threshold investments, and to determine changes in marketing behavior and technology correlates over time and over households. The collection of the information of the first grower survey will be in the first and second quarter of the first project year, and the specific case of dry bean producers will start in the northwest areas to the east, following the cropping cycles. At the individual level it is also important to determine the role of women on the adoption of

technology choices and markets. Questions regarding the division of labor in the household will be incorporated in the survey questionnaires.

The second household survey, of 1000 households in the same departments as the first survey, will take place in the second quarter of the project. The second field survey constructs a unique longitudinal panel data set consisting of multiple observations on the same farmer households over time. Nicaragua's LSMS (Living Standards Measurement Study, of the World Bank) panel study has collected data on the same 4,200 families since 1998, with detailed observations on both household and community characteristics. Designed by the Nicaraguan government and the World Bank, the study includes rich information on topics ranging from household demographics to farm production: the data are intended to represent conditions at the national, urban/rural and departmental levels. Three different questionnaires (household, anthropometric, and price) were used to collect data in 1998, 1999, 2001, and 2005. Of particular importance to the study, the data set contains detailed welfare measures from before the introduction of new market channels. By revisiting households within the LSMS we can generate longitudinal data matching market participation patterns over time to agricultural technology choices and the evolution of household welfare indicators for the first time. These data allow exploration of the causal relationships between market participation and welfare, taking into account both the timing and extent of market participation. Our contribution to the LSMS data will be detailed information on market channel participation and the survey will establish, using recall, when participant farmers joined particular marketing channels. The questions will be designed to provide data on the investments and impacts of participation: output price and price variation over time; requirements with respect to product quality; scale, timing or process; and associated producer investments.

Interviews with market channel participants will be conducted to complement the information collected in the survey. These interviews will be held in the first quarter of the first project year. We will conduct structured interviews with participant NGOs, farmer cooperatives, service providers, as well as visit local wet markets in metropolitan and rural areas to collect contrasting price data in order to describe transportation costs, intermediate prices and quality standards across supply chains. A case study methodology will be used to analyze the impact of organization differentiation on farmers. An in-depth analysis combining results from the supply chain analysis and the rural household surveys will be useful to determine successes and failures of organizations helping producers adopt a dynamic channel comparing success rates with scenarios where non-NGO assistance is provided.

The combination of surveys is complementary for the fullest understanding of the market access and assets situation - a product specific survey, with in-depth analysis of two illustrative supply chains (beans and plantains), and a general (non product-specific) survey that allows analysis over a broad and random set of households and products and panel data analysis.

#### **4. Policy and Development Program Design: The Project's Sustainable Integration with and Contribution to Designs that Maximize Small Farmers' Market Access**

##### **4.1. Indonesia: Specific Policy Design Issues**

First, the province-level government of West Java has recently realized that the extremely poor state of the wholesale market infrastructure and institutions are a major impediment to farmers accessing rapidly growing horticulture markets. (This realization was influenced by joint work of CAPAS and MSU in tomatoes, see Natawidjaja et al. 2006.) The government now wants to upgrade substantially the wholesale sector, with a first step to pilot a collection point system in rural areas. CAPAS is on the multi-stakeholder board of the effort and

the research do in the AMA CRSP project would immediately inform that local-level policy and investment effort. Our Indonesian PI has a unique proposal before this committee to create quota wholesale areas for farmers groups to be present in the new wholesale market system; our work on these groups as part of the value chain study will inform that initiative.

Second, the national government has recently realized the alarmingly poor condition of the horticultural value chains targeting the cities and exports. Again, the CAPAS/MSU initial study (Natawidjaja et al. 2006) influenced the new vision of the Ministry of Agriculture, Horticulture Division, to target particular value chains (such as mango and mangosteen, the priority products which is the reason we selected them for our proposed AMA CRSP study) for major upgrading in order to include small farmers, reduce transaction costs, and reduce produce prices to the urban poor. Policymakers are focused on this program as a pilot approach to transforming other value chains. CAPAS has close connections to this Division and participates as external advisor, so we have a unique conduit to top-level policymaking.

Third, as noted in the introduction there is initial evidence that the retail and wholesale sectors in Indonesia are transforming rapidly, with the emergence of supermarkets and modern specialized wholesalers, and that initial evidence from the tomato sector suggests that while small farmers participate in the modern channels, only the asset-rich elite among them are the participants. Those initial findings have alarmed policymakers who are worried that the modernization of the horticulture market will not bring broad-based participation. There is now an urgent demand for information beyond just tomatoes, in particular into what are the determinants of participation in the transforming fruit market channels, as that is a key competitiveness and poverty alleviation goal of the government at national and provincial level. Our project would inform that directly.

#### **4.2. Indonesia: Proposed Outreach to Policymakers and Local Development Programs**

First, facilitated and spurred by recent projects, CAPAS set up in 2006 a multi-stakeholder reference group with 15 members, including representatives from the Directorate General of Horticulture in the Ministry of Agriculture, the Coordinating Ministry of Economy, the BRI Bank, the West Java and Bandung Agricultural Office, the International Farmer Federation/Indonesian Chapter, the Indonesian Farmer Association, several NGOs, and their university. While this started with a project that ends mid 2007, this reference group is now longer term and independent of projects, and meets thrice yearly initially through 2010. This group will be the base “sounding board” and dialogue mechanism of our proposed AMA CRSP project; the latter will contribute to the development and replicability to other provinces of this approach unique in Indonesia. As ongoing policy and development program dialogue, we will have a policy dialogue with all stakeholder groups, using the above reference group for national and province level dialogue three times a year, and study-zone specific versions of that reference group with local stakeholders in parallel meetings. We will inform the stakeholders of the progress of the project, asking for their inputs, and influencing the policy debate.

Second, CAPAS and MSU will hold workshops with policymakers and key stakeholders (at provinces and national level) specific to the mango and mangosteen value chains at the start of the project in order to share and receive feedback on the project objectives and goals and overall design and to receive feedback on suitable ways to communicate results to end-users.

Third, in the mango and mangosteen study zones, the team will also conduct a policy dialogue with all stakeholder groups as part of the PRAs. As noted in activities, we will conduct 40 PRAs in the three provinces under study.

Fourth, to integrate training and outreach, we will invite delegates for selected multi-stakeholder workshops at province and national level, from among the Agricultural Policy Network developed by CAPAS during USAID Food Policy Activities (1999-2004); this consisted of 29 universities and National Agricultural Research Network (JPPN) consisted of 14 research institutions.

Fifth, the preliminary overall results of the study will be presented in a seminar in the third project year with policy makers, donor and collaborator organizations, NGOs and value chain representatives, and other key stakeholders. Their comments and suggestions will be incorporated in the final report. A policy note will be sent out to the policymakers nationally and final project publications will be prepared and sent to major international journals with copies to USAID and the Agricultural Policy Network members.

### **4.3. Nicaragua Outreach to Policymakers and Development Programs (National and USAID)**

#### **4.3.1. Nicaragua: Specific Policy Design Issues**

First, the new government in Nicaragua is debating how to best alleviate poverty in rural areas. The focus of the prior government had been to emphasize the development of larger agribusiness firms that in turn would increase wage-employment for the rural poor. The new government is considering how to focus investments on small and medium rural enterprises and farmers. The approach under debate is to create and/or strengthen “second floor cooperatives” (cooperatives of cooperatives) that will help producers to access dynamic and more stable markets, and to create non-permanent subsidies. Our study will address this issue as we analyze both the household and the cooperative/association levels upstream in the value chain, and their constraints and strategies in accessing the downstream portions of the chain, the wholesalers,

processors, and retailers. We address the immediate issues in the debate – what are key determinants of market access at these two levels, what are strategies for this access – which allow targeting and specificity in the now very general debate.

Second, a key part of the current policy debate is how to design the “Zero-Hunger Program.” This new initiative seeks to move away from subsidies for food for poor toward building the asset base of farmers, thus helping them to access dynamic markets. One of the products the program targets is dry beans. Our project directly addresses the information needs of this debate.

Third, the government is promoting the formation of product-specific clusters (plantains and dry beans included), which are networks of government, NGOs, exporters, retailers, and producers. The goal is to increase competitiveness while providing market access for small producers. Our case study and value chain analysis will address issues of how to form these networks, and the statistical results concerning determinants of access, and thus micro level requirements for channel entry, are needed to design support programs for the clusters.

#### **4.3.2. Nicaragua: Proposed Outreach to Policymakers and Local Development Programs**

First, during the design and launch of the research, we will work closely with development programs that help producers to access dynamic markets and with which our team members have a history of collaboration: Catholic Relief Services, the plantain and bean cluster programs, MUSANIC (a banana/plantain research consortium), and FUNICA.

Second, we will hold a conference on the preliminary results from the econometric estimation of the first survey, and briefs will be presented to policymakers and NGOs.

Third, we will hold workshops with policy institutions such as INTA, MAG-FOR, and NGOs, such as FUNICA and CRS to share the results of the ongoing research.

Fourth, we will hold a policy conference, joint between NITLAPAN and MSU, with representatives from the above institutions to issue briefings of policy recommendations that will be disseminated in the policy sphere, private sector, government extension institutions, and NGOs.

## **5. Current Capacity and Proposed Capacity Building**

The collaborating institutions were selected because they are (1) unique in their countries and regions in the degrees and ways they are already combining research, extension, and teaching in product value chain and rural household economics, (2) are great models for other institutions and so replicability is key; (3) aspire intensely to build their capacity to become sustainable models and centers of excellence at a regional level. Below we note their current capacity and aspirations, and then the project's plan for building that capacity through training and collaborative research and outreach.

### **5.1. Indonesia**

#### **5.1.1. Current Capacity – and Aspirations**

CAPAS is the Center for Agricultural Policy and Agribusiness Studies at Padjadjaran University. They are among the top centers working on food and rural issues in Indonesia; they are located in West Java which is the foremost “horticultural products basket” of Indonesia. CAPAS is the key informant on horticulture markets to the Ministry of Agriculture's Horticulture Division, and a key player in food security and rural development policy circles. Building the capacity of CAPAS means investing in a unique research/extension/teaching institution that can and should be the model for universities' helping poor farmers' access dynamic markets in Asia.

CAPAS has 13 faculty members, 6 research assistants, and 3 field assistants. CAPAS curriculum and research covers management, economics, agricultural trade, policy and marketing, rural sociology, and agricultural communication, so it has the interdisciplinary foundation needed for supply chain and rural household analysis. The faculty teach undergraduate, masters, and doctoral courses. The following example shows CAPAS capacity to undertake the proposed AMA CRSP project. In 2006/2007, CAPAS and Michigan State University collaborated in a World Bank project: (1) on the tomato and potato value chains (comparing the traditional chain with the emerging modern chain to modernized wholesalers and supermarkets) at the local production level (West Java) and the consumption areas level (focused on the greater Jakarta area); (2) the determinants and impacts of participation in the two market channels using a 1200 household sample; (3) 20 multi-stakeholder participatory rural appraisals (PRAs) in the local study zones; (4) a multi-stakeholder workshop of Policy and Institutional Mapping for Small-Scale Producer's Participation in Dynamic Market in Indonesia attended by major modern retailers, farmers and farmer associations, traders, researcher, and policy makers; (5) developed a multi-stakeholder reference group; and (6) presented the findings in two national level seminars at the ministry of ag and a national level conference organized by the world bank (see Natawidjaja et al. 2006).

Three other activities of CAPAS are particularly relevant: (1) CAPAS is now collaborating with Development Alternatives Inc. in the USAID Project "Agribusiness Market and Support Activities" (AMARTA). (2) CAPAS managed a "learning alliance" the Agricultural Policy Network in the USAID Food Policy Support Activities Project (1999-2004). (3) CAPAS faculty play important roles in policy circles, regionally and nationally, such as in the Indonesian

National Board of Food Security, West Java Board of Food Security, the Task Force Team for West Java Agro Wholesale Market Planning and Implementation.

CAPAS is engaged in training in the classroom (of undergraduate and graduate students) in extension (in its MOU with the Lembang Horticulture Agribusiness Training Center) and in its network activities.

### **5.1.2. Indonesia: Capacity Building by the Project**

CAPAS wants to make the leap from a highly engaged and locally applied center with the ear of the national policymakers, to stay with those roots but become a center of academic excellence that will influence the development of the fledgling supply chain and rural household economics profession in Indonesia and the rest of Southeast Asia. To do that it needs to add more US-trained staff. Thus, the proposed project will train one masters degree student at CAPAS, and send two students for Masters in Agricultural Economics at Michigan State University, with their thesis fieldwork in Indonesia.

Moreover, we will conduct workshops each semester in supply chain and household survey methodology and econometric modeling for the graduate students and faculty.

Finally, we will use the extensive in-place multi-stakeholder networks of CAPAS to conduct extension/training workshops each trimester with farmers groups, wholesalers, retailers, and extension agents in West Java. In one of the three each year we will invite delegates from other universities and government and NGO groups from elsewhere in Indonesia to participate so that this practice will be extended to other provinces.

## **5.2. Nicaragua Capacity and Training**

### **5.2.1. Current Capacity – and Aspiration**

Nitlapán is a “Research and Development Institute” of the Central American University. Nitlapán started in 1990. Its aim is to generate public policy proposals via research and development programs in the field, to explore alternative ways to promote rural development. Nitlapán is a unique (and, we believe, a model to be replicated elsewhere) university institute in that it combines being an integral academic/teaching/research component of a major university, with on-the-ground rural development programs with its sister, spin-off development institution involved in micro finance, land titling, and market linkage projects for small farmers. That program is called the “Local Development Fund” and has 55,000 clients in rural areas. Nitlapán has 24 offices throughout the country in a strategic alliance with the NGO.

The research program of Nitlapán has seven full-time researchers who are also faculty in the Graduate Program of the University – and thus integrate graduate student thesis fieldwork with their teaching, and all aimed at research topics that can be translated into action programs of the associated development NGO. All researchers in Nitlapán are part of the teaching staff of Central American University. The Graduate programs in which Nitlapán is involved are: Masters in Rural Development and Masters in Social Promotion. The researchers are trained in agricultural economics, rural sociology, trade, value chains, and public policy analysis. Nitlapán has a staff of 48 technicians for technical assistance and training for rural families.

Nitlapán researchers have undertaken a number of large-sample rural household surveys at national and zone levels, in national and international projects with the World Bank, IFAD, and in collaboration with FUNICA (a national-level Nicaraguan NGO) and the Ministry of Agriculture and Forestry. They have also undertaken product value chain analyses for the timber, leather, and textile industries, coffee, dairy and meat chains.

Nitlapán works closely with the national government in policy formulation. It has proposed rural policies in 1996, 2001 and 2005, when the various national governments took office. As a result, Nitlapán is member of the Consulting institution of the Ministry of Agriculture and Forestry and Presidential Office.

### **5.2.2. Nicaragua: Capacity Building by the Project**

First, an aspiration of Nitlapán is to move from a national to a regional center of excellence, and to build close links and comparative research across the region. One way that we propose in the AMA CRSP to facilitate that is by coupling a Guatemalan Ph.D. candidate (Ricardo Hernandez) at MSU with Nitlapán team in order to (1) collaboratively undertake the beans and plantains product value chain analyses and the concomitant rural household surveys, which also serves as Hernandez doctoral thesis, and (2) to facilitate linkages with researchers in Guatemala doing similar work in order to initiate an intra-regional research network; (3) link to the “learning network” of NGOs and CIAT in which MSU is participating at a regional level.

Second, a second doctoral candidate, Hope Michelson, a Ph.D. student at Cornell (who will be under contract with MSU for the project), and her major professor, Chris Barrett, will collaborate in a second survey in collaboration with Nitlapán, and publish the work with the Nicaraguan PI. This collaboration is directly valuable to Nitlapán by adding specific training and experience in panel data analysis, and indirectly as a conduit to bring to bear the world renowned expertise in market participation and asset poverty of Chris Barrett.

Third, the doctoral students from MSU and Cornell, expert in household models and econometrics, will hold training courses through two 2-week workshops with Nicaraguan researchers and graduate students, focusing on econometric estimation of adoption models, technology choice, and asset accumulation models.

Fourth, the doctoral students from MSU and Cornell will teach a four-week research policy analysis course for Master's students held at the Nitlapan Institute. Moreover, there will be a thesis competition for Nitlapan masters students involved in the project.

## **6. Contributions toward USAID Mission Objectives and Programs**

### **6.1. USAID Indonesia**

USAID/Indonesia has four strategic objectives: (1) “improved quality of decentralized basic education”; (2) “higher quality basic human services”; (3) “effective democratic and decentralized governance”, and (4) “economic growth strengthened and employment created”.

Our proposed work informs and contributes indirectly to (3) local governance, and directly to (4), as that is the overall focus of the work. The work contributes indirectly to 1 and 2 by demonstrating how the distribution of those services affects households' participation in dynamic markets. With respect to objective 4, there are various ongoing or new programs/project initiatives of the mission with which our proposed work is strongly complementary.

The most immediate interface is with the AMARTA (Indonesia Agribusiness Market and Support Activity) with Development Alternatives Inc. (DAI), period 2006-2009. Note that MSU is an institutional second in AMARTA with DAI, and CAPAS is a collaborating institution in Indonesia with AMARTA. The research we propose will very directly inform the supply chain upgrading, and the buyer identification activities of AMARTA as well as differentiated approaches to asset-categories of farms.

Another program with an interface with our proposed project is the “DCA-Danamon: expanding microcredit to agro-processors, 2005-2008”. Our project would inform it of specific needs in the horticulture sector.

## **6.2. USAID Nicaragua**

The mission has three strategic objectives of promotion: (1) “ruling justly”; (2) “economic freedom,” fostering trade-led economic growth and rural diversification through implementation of free trade agreements and improvements in the competitiveness and market linkages of Nicaraguan businesses, and (3) “investing in people” increasing access to quality health services and basic education.

Our project would directly contribute to (2) and indirectly to (3).

Several ongoing or new programs/project initiatives of the mission with which our project would be strongly complementary are the following.

First, the “Wal-mart Agreement” Program is highly relevant. That program involves training of farmers in the supply chain to Wal-mart. This agreement builds on the 2003 agreement between USAID and Hortifruti. There is in fact a direct continuity with our project, in that MSU (through the PFID-F&V project in Nicaragua 2003-2007) assisted USAID in the formation of the original program with Hortifruti and supply chain upgrading action activities with farmers, and undertook research activities on tomatoes as part of that (see the publication lists). The AMA CRSP would continue and deepen that research, this time in intense collaboration with a key local institution Nitlapan, on beans and plantains.

Second, our project would directly inform the Millennium Challenge Account activity in Nicaragua, administered through the USAID mission. The activity is in part focused on infrastructure and rural business to improve market access for farmers in Leon and Chinandega, which are part of our project’s study area.

## References

Berdegú, J.A. F. Balsevich, L. Flores, T. Reardon. 2005. "Central American supermarkets' private standards of quality and safety in procurement of fresh fruits and vegetables," *Food Policy*, Vol 30 Issue 3, June: 254-269.

Carter, M.R., B.L. Barham, and D. Mesbah. 1996. "Agroexport Booms and the Rural Poor in Chile, Guatemala, and Paraguay," *Latin American Research Review*, 31(1): 33-65.

Natawidjaja, R., T. Perdana, E. Rasmikayati, T. Insan Noor, S. Bachri, T. Reardon, and R. Hernandez. 2006. *The Impact of the Rise of Supermarkets on Horticulture Markets and Farmers in Indonesia*. UNPAD/MSU Report to the World Bank. November.

Reardon, T. and C.P. Timmer. 2007. "Transformation of Markets for Agricultural Output in Developing Countries Since 1950: How Has Thinking Changed?", chapter 13 in R.E. Evenson and P. Pingali (editors). 2006. *Volume 3 Handbook of Agricultural Economic, 3: Agricultural Development: Farmers, Farm Production and Farm Markets*. Amsterdam: Elsevier.

## **Anticipated Outputs**

Our project has a solid balance among academic-oriented research and outputs targeted toward local and global policy-making communities. Our team has a strong research publications record, including significant publications for both disciplinary and interdisciplinary audiences. We plan to publish several journal articles and perhaps a book from this project. But we also put high priority on direct dissemination of research results to lay decision makers through policy briefs intended for policymaker and community audiences in the region.

The work in both countries is a balanced and tightly integrated mix of research, outreach, and capacity building. The goal is to alleviate poverty through increasing market access for small farmers, and to do that, that tight integration of outputs is crucial. We outline the outputs then in two sets per country and a comparative set.

The Indonesian work will generate the following institutional outputs: (1) training of CAPAS students and faculty, and stakeholder groups; (2) outreach workshops and networks with policymakers; (3) strengthening of learning network with universities and research institutes; (4) creation (through information exchange) of opportunities for market linkages between farmers and modern sector processors, wholesalers, and retailers).

Moreover, the Indonesia work will produce the following documents linked to the research, outreach, and capacity building: (1) two MSU Masters theses by Indonesian students; (2) three CAPAS Masters theses; (3) three scholarly journal articles in international journals; (4) two separate reports on mangos and mangosteens to inform the policymakers and stakeholders related to those product value chains; (5) one overall report for the project;

(6) policy briefs from the above outputs; (7) summaries of the workshops and stakeholder meetings; (8) a policy brief with the overall implications of the work for the policy and development program issues detailed in the narrative.

The Nicaragua work will generate the following institutional outputs: (1) training of Nitlapan students and faculty, and stakeholder groups in the beans and plantain areas as well as at national level; (2) outreach workshops and networks with policymakers; (3) contribution to the unique linkage between Nitlapan and its NGO development partners (the local development fund, Funica and other members from the learning alliance); (4) strengthening of learning network among NGOs and research institutes; (5) creation (through information exchange) of opportunities for market linkages between farmers and modern sector processors, wholesalers, and retailers).

Moreover, the Nicaragua work will produce the following documents linked to the research, outreach, and capacity building: (1) two doctoral theses at MSU and Cornell; (2) six Nitlapan Masters theses (four would be outputs from the research contest among students); (3) three scholarly journal articles in international journals; (4) two separate reports on beans and plantains to inform the policymakers and stakeholders related to those product value chains; (5) one overall report for the project; (6) policy briefs from the above outputs; (7) summaries of the workshops and stakeholder meetings; (8) a policy brief with the overall implications of the work for the policy and development program issues detailed in the narrative.

Results briefs in both countries will be disseminated among farmers groups and other stakeholders in the survey areas in order to help producers understand the importance and benefits of dynamic markets, as well as their requirements and challenges. This information

will help farmers groups formulate competitive positioning strategies and make needed investments in market-specific assets and skills and/or pursue assistance from the government and NGOs to get these assets.

Finally, there will be several outputs of comparison and synthesis in the project. (1) A comparative piece to inform the USAID missions and USAID/Washington of the overall policy and program implications and key findings of the work. This will be done yearly as an intermediate output and then a final output. (2) A joint academic output between the country teams and MSU and Cornell to inform the AMA CRSP partners. (3) A workshop among the team.

## **Benchmarks**

### **Benchmarks: Training**

Overall goal: Building the research, survey, and dissemination capacity of host country personnel

Annual measures:

- 1) Host country personnel trained in degree, post-degree and non-degree programs
  - Three Indonesian master's students trained (two at MSU and one at CAPAS) during the second and third years of the project.
  - Five two week training courses with Nicaragua researchers and graduate students on econometric estimation of adoption models, technology choice and asset accumulation models (three in the first year, two in the second year)
  - One four-week research policy analysis course for advance degree students held at Nitlapan (during the second year).
  - One thesis competition among Nitlapan's master students.
- 2) Documented contact between host country students and regional policymakers
  - Three policy dialogues per year with policy makers and research team in both countries.

### **Benchmarks: Policy integration**

Overall goal: Direct dissemination of research to regional and national policymakers.

Annual measures:

- 1) Policy briefs written and distributed
  - Six policy workshops with policy makers and key stakeholders, policy briefs will be raised as outputs from these workshops (two per year).
  - Two final policy briefs with the overall summaries of the workshop and stakeholder meetings (one per country).
- 2) Documented contact with policymakers, donors, and NGOs in pre-study and outreach workshops
  - Two pre-survey workshops with development programs in Nicaragua during the first year.
  - One policy conference joint between MSU and Nitlapan during the second year.
  - Three multi-stakeholders workshops at province and national level in Indonesia (one per year)

**Benchmarks: Achievement of USAID objectives and development impact**

Overall goal: To advance the USAID strategic objectives for economic growth, job growth, improved competitiveness and market linkages in both countries through research and outreach activities.

Annual measures:

- 1) Documented facilitated contact between producers, policymakers, NGOs, and value-chain stakeholders.
  - One preliminary results seminar between producers groups, policymakers, retailers, NGOs etc per country.
  - Four extension training workshops with farmers groups/wholesalers, retailers etc per year.
  - A yearly comparative piece to inform USAID missions and USAID Washington of policy, program implications and key findings.
- 2) Coverage by local media
- 3) Host country master's students participation in policy research briefing competition using the survey data collected by the project (Nicaragua site)
  - Six masters theses from Nicaraguan masters students (four of them will come from the competition).
  - Two MSU masters theses and three CAPAS masters theses by Indonesian students.
- 3) Research publications written and disseminated
  - Two doctoral theses at MSU and Cornell.
  - Six Nitlapan masters theses.
  - Three Indonesian master theses (two at MSU, one at CAPAS).
  - Four reports on plantains, dry beans, mangos and mangosteen to inform policymakers and stakeholders related to the value chains.
  - A minimum of six scholarly journal articles (three Nicaragua, three Indonesia)
  - Two final reports disseminated among donors, policy makers and key stakeholders.

## **Project Timeline**

The first year of the project (May 2007 – April 2008) will focus on preliminary scouting at the community level, field data collection across Nicaragua, training of the Nicaraguan team by the two Ph. D. candidates from the MSU team on econometric analysis of market channel, technology adoption and assets accumulation models. A team project meeting will be held in June in order to coordinate data collection, project design and enumerators training. The Nicaraguan host country team, along with the MSU field team, will hold pre-study workshops with policy makers in Managua. During the first quarter of the year the team will survey stakeholders at the community level along with stakeholders in the value chains of interest in order to share and clarify the project's goals and design, and to receive feedback on suitable ways to communicate results and concerns back to end-users.

Data collection in Nicaragua will begin in the first quarter; one specific survey, of dry bean producers, will follow the cropping cycles, thus starting in the northwest areas and track to the east. During the second quarter of the year, data collection for the second survey will begin. Also, initial interviews for case studies in the value chains will be in this quarter. In the third and fourth quarter, preliminary results from the econometric estimation of the first survey will be presented and discussed among all team members. At intervals throughout the project, basic econometric and research methodology workshops will be offered by participating MSU Ph. D. candidates, for the benefit of Nicaraguan advanced degree students at the Nitlapan Institute and other team members.

In the second year (May 2008 – April 2009), a second major project conference will be held in Managua, where the completed econometric estimation of the second survey questionnaire

will be reviewed and discussed among team members. Workshops will be held with policy makers, NGOs and value chain representatives, and recommendation briefs will be formulated and widely disseminated. Research methodology and econometric workshops will continue during the second year; these seminars will be coordinated with the student research contest. Several community workshops will also be held in the surveyed areas to review results from the empirical analysis and case studies with participant stakeholders.

The second year of the project begins the Indonesia component of the research and will focus on the national market and wholesale market studies. A first team member meeting will be scheduled for June 2008, following the same objectives as the initial planning meeting in Nicaragua. Secondary data pertaining to production, demand, import, and export of fruits will be collected from the Ministry of Agriculture, the Ministry of Trade, the BPS, and other credible and useful sources. The PRAs will be conducted during this year as well.

Interviews will be conducted with significant firms in modern wholesale and retail: the food and beverages industries, agricultural export/import companies, inter-island traders, and major traditional central markets. The team will draft a map of value chain models and identify drivers of market restructuring. Workshops similar to the Nicaraguan training sessions will be held in Indonesia during this project year. Three Padjadjaran University master's degree students will begin training on agribusiness supply chains and econometrics in Fall 2008: one student will be in Indonesia and two at Michigan State University.

During the third project year (May 2009 – April 2010), final project publications will be prepared and circulated in Nicaragua among policy makers, donor and collaborator organizations, NGOs and value chain representatives. A second set of community workshops in the surveyed areas will be held. In Indonesia, local supply chain and local area studies in the

production zones will continue until the end of first quarter of the third year. Team researchers will draft an overall analysis of the value chain, the hypotheses for the micro study, and a set of policy recommendations. MSU and Indonesian team members will work with Padjadjaran University graduate students to discuss the econometric models, methodology and formulate a strategy for the micro study at the producer level. During the fourth project year (May 2010 – April 2011), project activities will take place only in Indonesia, where the team will collect, analyze and interpret data, conduct econometric analysis, and write the report draft. The preliminary results of the Indonesia study will be presented in a seminar with policymakers, donor and collaborator organizations, NGOs and value chain representatives, and other key stakeholders. Comments and suggestions from this seminar will be incorporated in the final report. At the conclusion of the project, policy notes for Nicaragua and Indonesia will be sent out to national policy makers and final project publications will be prepared and sent to major international journals.

In each year, an interim report to the USAID missions and to USAID/Washington will be provided with an update on key findings to date and policy and program implications. In the last year of each country activity a final report of this type will be provided to the mission in that country and USAID/Washington. For all reports the AMA CRSP and all partners will receive copies.

In the final year, the country teams and MSU and Cornell collaborators will produce the cross-country comparative synthesis outputs noted in the outputs section.