



**Asia-Pacific
Economic Cooperation**

2013/SOM3/PPFS/021

Agenda Item: 9

US PPFS WG1 Stock-Take Report: External Actors

Purpose: Information
Submitted by: United States



**Second Policy Partnership on Food
Security Meeting
Medan, Indonesia
22-25 June 2013**



WG 1 Stock-take of External Actors

As determined at the PPFS plenary meetings in Jakarta, the US PPFS team undertook a stock-take of food security work outside of official APEC food security programs. After compiling a list of organizations, companies, NGOs, academic institutions, and farmer groups, all contacts on the list were invited to participate in a brief survey and asked to describe their respective efforts on food security in the region. The survey received 25 responses.

In order to more fully develop the stock-take and gain a more complete view of the food security initiatives in the region, a research project was simultaneously undertaken. Each organization's website was examined and activities were briefly summarized. This stock-take not yet comprehensive due to variations in web content and language barriers. It is, however, a very useful beginning and provides an initial depth of useful information. It can be improved upon as the PPFS moves forward.

Any inaccuracies or omissions are unintentional. The formatting of the stock take will be improved upon in the coming months.

There are three parts to the stock take:

- **Stock take overview** provides a list of the organizations researched, the areas they are active, and the respective pages number in the report where more details are provided on their programs.
- **Stock take report** provides details of programs and website information
- **Food Security Survey summary** is a report of the results of the survey distributed to all PPFS members and stock take contacts.

FOOD SECURITY ACTIVITIES IN APEC STOCK-TAKE OVERVIEW

	RESEARCH (POLICY, AGRICULTURE STATISTICS, ETC.)	INNOVATIVE AGRICULTURE RESEARCH	AGRICULTURE PRODUCTIVITY ENHANCEMENTS	POST HARVEST LOSS REDUCTION	HUMAN CAPACITY DEVELOPMENT	IMPROVED FARMER ACCESS TO CAPITAL FINANCE AND RISK MANAGEMENT INSTRUMENTS	IMPROVED ACCESS TO REGIONAL AND GLOBAL MARKETS INCREASED	CAPACITY OF AGRICULTURE SYSTEMS TO ADAPT TO CLIMATE CHANGE	FUNDING FOR AGRICULTURAL RESEARCH	TECHNOLOGY DISSEMINATION	SUPPLY CHAINS	INFRASTRUCTURE DEVELOPMENT	OTHER
ACIAR (pages 7-27)		✓	✓	✓	✓	✓	✓	✓	✓		✓		
ADM Institute for the Prevention of Postharvest Loss (pages 29-36)		✓	✓	✓	✓				✓		✓		
Agri-Food and Veterinary Authority of Singapore (pages 37-44)		✓	✓	✓	✓	✓				✓		✓	
Cargill (pages 45-49)			✓		✓	✓		✓	✓	✓	✓		
Coca-Cola (pages 50-52)			✓					✓	✓			✓	
Croplife Asia (pages 53-63)			✓	✓	✓			✓	✓				
Center for Strategic International Studies (CSIS) (pages 64-67)	✓	✓											
DuPont (pages 68-71)		✓	✓	✓				✓	✓	✓			
Earth Island Institute (pages 72-73)					✓			✓					
General Mills (page 74)		✓						✓					
IFAD Operations (pages 75-92)			✓		✓	✓	✓	✓			✓	✓	
Instituto del Mar del Peru (IMARPE) (pages 93-95)		✓	✓					✓	✓				
Kraft/Mondeleez (pages 96-97)			✓		✓			✓					
Monsanto (pages 99-108)		✓	✓		✓			✓	✓	✓	✓		
National Farmers Federation – Australia (pages 109-117)		✓	✓		✓	✓	✓	✓		✓		✓	

	RESEARCH (POLICY, AGRICULTURE STATISTICS, ETC.)	INNOVATIVE AGRICULTURE RESEARCH	AGRICULTURE PRODUCTIVITY ENHANCEMENTS	POST HARVEST LOSS REDUCTION	HUMAN CAPACITY DEVELOPMENT	IMPROVED FARMER ACCESS TO CAPITAL FINANCE AND RISK MANAGEMENT INSTRUMENTS	IMPROVED ACCESS TO REGIONAL AND GLOBAL MARKETS	INCREASED CAPACITY OF AGRICULTURE SYSTEMS TO ADAPT TO CLIMATE CHANGE	FUNDING FOR AGRICULTURAL RESEARCH	TECHNOLOGY DISSEMINATION	SUPPLY CHAINS	INFRASTRUCTURE DEVELOPMENT	OTHER
Inter-American Development Bank (pages 212-215)			✓										
International Food and Agricultural Trade Policy Council (pages 215-216)	✓												
International Food Policy Research Institute (IFPRI) (page 216)	✓												
International Grains Council (page 217)	✓												
United Nations Conference on Trade and Development (UNCTAD) (page 218)	✓												
USDA, Economic Research Service (pages 218-219)	✓												
World Economic Forum (WEF) (pages 219-220)	✓												
World Farmers Organization (WFO) (pages 220-221)		✓				✓							
World Food Programme (WFP) (pages 221-222)	✓	✓											
World Trade Organization (WTO) (pages 222-223)	✓												
Bimbo (pages 223-226)	✓												
Campbells (pages 226-228)		✓	✓										
Catapillar (pages 228-233)													✓
Conagra (page 233)													✓
Elanco (pages 233-237)			✓		✓						✓		

	RESEARCH (POLICY, AGRICULTURE STATISTICS, ETC.)	INNOVATIVE AGRICULTURE RESEARCH	AGRICULTURE PRODUCTIVITY ENHANCEMENTS	POST HARVEST LOSS REDUCTION	HUMAN CAPACITY DEVELOPMENT	IMPROVED FARMER ACCESS TO CAPITAL FINANCE AND RISK MANAGEMENT INSTRUMENTS	IMPROVED ACCESS TO REGIONAL AND GLOBAL MARKETS INCREASED	CAPACITY OF AGRICULTURE SYSTEMS TO ADAPT TO CLIMATE CHANGE	FUNDING FOR AGRICULTURAL RESEARCH	TECHNOLOGY DISSEMINATION	SUPPLY CHAINS	INFRASTRUCTUR E DEVELOPMENT	OTHER
Indian Food Processors Association (pages 271-278)	✓	✓								✓			
Unilever (pages 278-279)		✓											
Feeding America (pages 28-282)													✓
Global Alliance for Improved Nutrition (pages 282-283)	✓					✓							
Pew Health Group (pages 283-286)	✓	✓											
International Life Sciences Institute Pages (287-291)	✓	✓			✓								
Nutrition Society of Malaysia (page 291-306)	✓												✓
Australian International Food Security Centre (page 307)		✓	✓		✓								
University of Queensland, School of Agriculture and Food Sciences, Food Security Focal Area (pages 307-308)	✓	✓											
NZ International Business Forum (page 309)													✓
New Zealand Ministry for Primary Industries (page 310)								✓					
New England Aquarium (pages 312-317)	✓				✓		✓						
Algalita Marine Research Foundation (pages 317-321)													✓
Council of Agriculture, Chinese Taipei (pages 321-330)	✓	✓			✓			✓	✓	✓			
GS1 (pages 330-335)	✓										✓		

ACIAR

Country	Project	Time Frame	Project Description	Subject Category
Indonesia	Eastern Indonesia agribusiness development opportunities - analysis of beef value chains	2012-2013	This study is a component of the \$1 million AusAID-funded project Analysing Agribusiness Development Opportunities in Eastern Indonesia (EI-ADO). Its purpose is to identify lead commodity value chains to be the focus of a new AusAID program Australia Indonesia Partnership for Decentralisation - Rural Economic Program (AIPD-Rural). The goal of AIPD-Rural is a 30 per cent increase in income for more than one million poor male and female farmers, with beef cattle as a lead commodity and a focus on the Indonesian regions of NTT, NTB and East Java. The study comprises a detailed characterisation and mapping of representative beef value chains. A comprehensive training program is included, based on a guide titled: Making value chains work better for the poor: A toolbook for practitioners of value chain analysis.	innovative agriculture research; agriculture productivity enhancements; human capacity development

ACIAR

<p>Australia, Vietnam</p>	<p>Towards more profitable and sustainable vegetable-based farming systems in north-western Vietnam and Australia</p>	<p>Start Date 01/11/2012 Finish Date 30/06/2013</p>	<p>The vegetable sector in north-western Vietnam faces a number of challenges - rapidly transforming markets, competitiveness with peri-urban producers, poor infrastructure and logistics, and environmental sustainability. The north-western region also encompasses some of the poorest provinces in Vietnam. Ethnic minorities, particularly H'mong, Tay, Nung and Thai, dominate the highlands region. A key focus area of the Government (and more particularly the Vietnam Women's Union) is to help these communities to improve their livelihoods. This study follows an earlier project, AGB/2006/112, that identified some integrated soil, water and nutrient management practices best suited to local conditions. The study team will gather background information and develop a proposal for a multi-program Agribusiness (AGB) and Soil Management Crop Nutrition (SMCN) project to enhance the profitability and sustainability of vegetable-based farming systems in north-western Vietnam.</p>	<p>innovative agriculture research; agriculture productivity enhancements; increased capacity of agriculture systems to adapt to climate change</p>
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ACIAR

<p>China and Vietnam</p>	<p>Assessing farmer responses to climate change - adjustment policy options in China and Vietnam</p>	<p>Start Date 01/01/2012 Finish Date 31/12/2012 Extension Start Date 01/01/2013 Extension Finish Date 30/04/2013</p>	<p>Much work has taken place on the science and the physical mechanisms involved in climate change. Less attention has been given to farmer choices in response to climate change and to related policy responses. Across East and Southeast Asia millions of farmers risk poverty by not responding to climate change, but if they decide to act then their choices may be distorted by market failures and lack of information - a situation that creates challenging policy-making problems. This project, focusing on China and Vietnam, will provide a report and discussion of farmer expectations of climate change, likely adjustment strategies, assessments of the capacity of different types of farmers to respond and an analysis of the sources of differences among farmers in expectation, strategy and capacity. It will also review policy challenges and priorities for further research.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change; human capacity development</p>
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Papua New Guinea	Market diversification and sweetpotato processing in Papua New Guinea: A pre-feasibility study	Start Date 15/06/2012 Finish Date 30/06/2013	Sweetpotato can be consumed as fresh tubers, used as stockfeed, processed into food products, or converted into biofuel and other industrial products. Many countries including China, Taiwan, Vietnam, Vanuatu, Samoa and Australia have successfully commercialised up to 10 per cent of total their production. But in PNG, sweetpotato processing is limited to research and product development conducted by FPDA and NARI, who have focused mainly on evaluating varieties and their suitability for producing composite sweetpotato and wheat flour for cakes, donuts, pancakes, noodles, etc. While training for making sweetpotato products was provided to women's groups and entrepreneurs, the uptake of technology was poor. This project will review the situation and produce a comprehensive report outlining the opportunities for, and constraints to, developing a processing sector for sweetpotato in PNG.	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change
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China and Australia	More effective water use by rainfed wheat in China and Australia	Start Date 01/06/2008 Finish Date 30/06/2013	In both north-western China and Australia, conservation farming practices are being promoted as an important component of more-sustainable farming systems. CSIRO Plant Industry has been achieving considerable breeding success for dryland wheat in Australia by targeting specific traits that make more effective use of available water. Some of these traits have also been shown to improve adaptation of wheat to conservation farming practices. This project aims to extend this breeding success to north-western China by working with leading breeding programs for dryland wheats in north-western China, based at Northwest Agriculture and Forestry University, Yangling, Shaanxi, and Ningxia Academy of Agriculture and Forestry Science, Yinchuan, Ningxia.	agriculture productivity enhancements; increased capacity of agricultural systems to adapt to climate change
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ACIAR

<p>India and Australia</p>	<p>Indo-Australian project on root and establishment traits for greater water use efficiency in wheat</p>	<p>Start Date 01/06/2009 Finish Date 31/07/2013</p>	<p>This project is the first to be developed using the new Indo-Australia Program on Marker Assisted Wheat Breeding (IAP-MAWB) modality. Its purpose is to develop wheat varieties with deeper, faster-growing roots that better exploit soil moisture and increase yields in rainfed or minimally irrigated systems in India and Australia. The activities span nine wheat-growing seasons. At three Australian and five Indian core sites the joint research team will study root growth rates, rooting depth and potential for genetic improvement. The team will also co-develop protocols to measure root growth in controlled environments and leaf temperature in the field. In addition, the team will investigate shoot characteristics that influence crop establishment and water-use efficiency. Desired outcomes are development of wheat breeding populations that combine desirable traits for increasing yields in water limited conditions in Australia and India, and also identification of molecular markers that indicate traits for deeper roots and better crop establishment.</p>	<p>agriculture productivity enhancements; increased capacity of agricultural systems to adapt to climate change</p>
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Indonesia	Markets for high-value commodities in Indonesia: Promoting competitiveness and inclusiveness	Start Date 01/06/2008 Finish Date 30/11/2011	<p>After the Asian currency crisis of 1997 Indonesian policymakers liberalised foreign investment in the retail sector, allowing rapid growth in foreign-invested supermarket chains. As a result, the share of supermarkets and convenience stores in retail food sales rose from 22% in 2000 to 30% in 2004. This study will examine the transformation of selected high-value supply channels in Indonesia and their impact on farmers, wholesalers, and first-stage processors. The commodities are mango, mangosteen, chillies, shallot and prawns. Project researchers will examine the following research and policy areas for each commodity: changes in demand that drive the transformation of food supply chains; patterns in restructuring food supply chains; farmer participation in restructured value chains; and how to maximise the transformation of high-value supply chains. The studies will lead to an improved understanding of consumer preferences regarding food quality, food safety and related attributes in fruits, vegetables and prawns. Researchers will be better equipped to estimate the future growth of supermarkets based on current</p>	
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			<p>preferences for different retail food outlets among poor and rich households. The study will provide a more detailed and realistic view of the pace of transformation of horticulture and aquaculture marketing channels and its likely effect on small farmers.</p>	
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ACIAR

Indonesia and Australia	Plausible futures for economic development and structural adjustment - impacts and policy implications for Indonesia and Australia	Start Date 01/01/2009 Finish Date 31/12/2011	Indonesia's agricultural economy is in urgent need of assistance to undertake quality policy analysis focused on maintaining sustainable economic growth in the face of growing global economic and environmental pressures. This project will conduct an overview of Indonesian agricultural technologies, policies and associated data that impacts on economic growth and production efficiency in the face of these changes. Activities will include data collection and analysis on agricultural-related technology, policies and institutions, and delivery of both partial-equilibrium sector and economy-wide econometric modelling of policy options. The program will involve policy dialogues, study tours to relevant institutions and staff interchanges. Such activities are designed to improve the capacity of Indonesian policymakers to review the contribution of agriculture to rural and wider economic development and to design policies that can impact positively upon incomes, poverty and hunger in the medium to longer term. The Indonesian policymakers will gain an enhanced set of knowledge and decision support tools that can help them to	innovative agriculture research; agriculture productivity enhancements;
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			<p>look to future challenges posed by global environmental and economic change and to identify and examine areas in need of alternative policy options. Fulfilling these aims will also bring out broader implications for the rest of the Asia-Pacific region, to show how regional economies such as Australia might best adjust to policy changes in Indonesia under alternative growth scenarios.</p>	
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<p>Papua New Guinea</p>	<p>Increasing production from inland aquaculture in Papua New Guinea for food and income security</p>	<p>Start Date 01/04/2010 Finish Date 31/03/2014</p>	<p>There are already more than 10,000 small-scale fish farms in Papua New Guinea producing tilapia, carp or trout for home consumption and sale, and interest in aquaculture continues to climb. The government has given high priority to aquaculture development in recognition of its potential to help achieve food security, particularly in the inland areas. But current production levels are low when compared with South-East Asian systems. Constraints include lack of capability within management agencies to identify appropriate sites for pond development, inadequate supply and poor quality of fingerlings, limited availability and high cost of pond fertilisers and suitable feeds, and a general lack of knowledge and training on aquaculture husbandry skills. The objectives of this project are to develop aquaculture planning systems for management agencies and improve fish husbandry techniques for primarily small-scale fish farmers in PNG. Focused on the Western, Western Highlands, Eastern Highlands and Morobe Provinces, the project will address the farming requirements of different fish species and environmental challenges. The project builds directly on previous</p>	<p>innovative agriculture research; agriculture productivity enhancements; improved farmer access to capital finance and risk management instruments</p>
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			<p>research undertaken with support from ACIAR - one project on land classification for aquaculture development in Indonesia and three others on various aspects of inland aquaculture in PNG.</p>	
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Indonesia	Strategic plan for ACIAR engagement in developing Indonesia's capture fisheries research and management capacity	<p>Start Date 01/12/2011</p> <p>Finish Date 30/07/2012</p>	<p>Capture (or wild) fisheries are a critical part of Indonesia's seafood production and fisheries livelihoods. Seafood contributes over 53% of animal protein consumed in Indonesia and demand is increasing with population growth. However, there is concern over the state of these fisheries with ongoing overfishing and overcapitalisation. The Government of Indonesia has recognised the country's limited fisheries research and management capacity. This small research and development activity has two main aims: to produce a 10-year strategic plan for research into capture fisheries; and to build the capacity of fisheries managers, policy makers and researchers in Indonesia. Activities will include reviewing past fisheries research, and past and current fisheries management practices. Consultations will also be held with relevant Australian and Indonesian agencies to identify and prioritise research and capacity building needs. Workshops will train managers and policy makers to better understand, use and direct research, and will teach researchers in stock status and assessment methods. The main output will be a</p>	<p>innovative agriculture research; agriculture productivity enhancements;</p>
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			10-year research strategy for Indonesia's capture fisheries.	
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Papua New Guinea	Evaluation of the potential for commercial aquaculture of the freshwater prawn <i>Macrobrachium rosenbergii</i> in Papua New Guinea	Start Date 01/03/2012 Finish Date 28/02/2014	ACIAR has invested extensively in research to increase production from inland aquaculture in Papua New Guinea, where it is seen as holding promise to increase food and income security. This study is evaluating the indigenous PNG strain of the giant freshwater prawn <i>Macrobrachium rosenbergii</i> for its potential in the country's commercial aquaculture.	innovative research
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China	Sustainable livestock grazing systems on Chinese temperate grasslands	Start Date 01/07/2011 Finish Date 31/12/2015	<p>Over the last 50 years grasslands of NW China have become degraded, due to a 5-6 fold increase in people and livestock. Major consequences are 1) household incomes of herders that are among the lowest in China, and 2) degraded environments typified by grassland degradation and severe annual dust storms.</p> <p>This project will provide the evidence and grassland management options to help guide Chinese R&D agencies on how to alleviate poverty and reduce environmental degradation on degraded grasslands by improving household incomes from livestock production while reducing grazing pressures.</p> <p>This project builds substantially on the work of the previous project (LPS/2001/094) which demonstrated the potential of whole farm models in identifying options for improving incomes and rehabilitating grasslands that could be implemented now on farms. An external review of LPS/2001/094 strongly supported the work done in that project, but identified the need to improve the core production relationships used in the models and to adequately develop the grassland sustainability</p>	innovative agriculture research; agriculture productivity enhancements; human capacity development; supply chains
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			model as well as then testing model predictions in practice on farms.	
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Vietnam	Overcoming technical and market constraints to the emergence of profitable beef enterprises in the north-western highlands of Vietnam	Start Date 01/04/2011 Finish Date 31/03/2015	<p>The North West Highlands of Vietnam is one of the poorest regions in the country. Approximately 75% of the ethnic minority people who dominate the region live in poverty, partly because they have poor access to profitable markets in comparison with other regions of Vietnam. There are also various biophysical constraints to agriculture - especially long dry winters and remote mountainous terrain. The Vietnamese Government and ACIAR have identified beef cattle production, an important component of the smallholder farming system, as a priority area for further research and development.</p> <p>Market demand for beef has increased rapidly in Vietnam (from 7,700 tonnes (liveweight basis) in 2001 to 159,400 tonnes in 2006). Data on beef imports to Vietnam also support the dramatic increase in demand for beef - the total import value of beef in 2009 was around USD160 million. These data indicate that the demand for beef is increasing rapidly in Vietnam, especially beef in the high quality category, and that domestic beef production is unable to meet this demand.</p> <p>The overall aim of the project is to</p>	innovative agriculture research; improved access to regional and global markets; funding for agricultural research
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		<p>develop, evaluate and implement new technical and market strategies to improve smallholder incomes from beef cattle in the north-western highlands of Vietnam. This will be achieved through the following objectives:</p> <ol style="list-style-type: none">1. Improve the efficiency and effectiveness of existing beef value chains and the profitability and sustainability of the value chain for smallholder cattle producers.2. Quantify the biophysical and socio-economic characteristics of the smallholder farming systems involving cattle production.3. Develop and test viable management strategies for capitalising on market opportunities and minimising the impact of the cold dry season and other important cattle production constraints.	
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ACIAR

<p>Papua New Guinea and Indonesia</p>	<p>Incursion prevention and management of coffee berry borer (CBB) in Papua New Guinea and Indonesia (South Sulawesi and Papua)</p>	<p>Start Date 01/06/2008 Finish Date 31/05/2013</p>	<p>Coffee production in PNG and Indonesia is threatened by the most serious pest, Hypothenemus hampei known as coffee berry borer (CBB). In Indonesia, where 96% of coffee is planted by smallholders, CBB has infested 920,000 ha and has led to an annual production loss of 15-20%. PNG production is under threat of incursion from the Papua Province in Indonesia because the pest is present in Wamena and Oksibil districts - respectively 200 and 50 km from the PNG border. This project aims to prepare stakeholders in Sulawesi, Papua and PNG to manage and prevent incursion of CBB and thus ensure continued productivity of coffee plantings. This will come from enhanced stakeholder knowledge/awareness of CBB, strengthening surveillance/monitoring efforts for CBB management and incursion detection, and building up the capacity and institutional framework for CBB biosecurity management. Coffee is the major agricultural export commodity for PNG and a major source of cash to smallholders, thus any success in delaying the invasion of new zones by CBB will have a great economic impact.</p>	<p>supply chains; agriculture productivity enhancements; post harvest loss reduction</p>
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ADM Institute for the Prevention of Postharvest Loss

Country	Project	Time Frame	Project Description	Subject Category
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ADM Institute for the Prevention of Postharvest Loss

	<ul style="list-style-type: none">•Measurement and technology development <p>"Measurement, Documentation and Postharvest Processing for the Prevention of Postharvest Losses of Soybeans and Corn"" Dr. Mary-Grace Danao "Managing Grain Losses in Continuous Cropping Systems of the Tropics through On-Farm or Cooperative Storage" Dr. Peter Goldsmith "Appropriate Technology Development and System Integration for Postharvest Loss Prevention"" Dr. Ximing Cai</p>			post harvest loss reduction; funding for agricultural research
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ADM Institute for the Prevention of Postharvest Loss

• Systems informatics and analysis "Concurrent Science, Engineering, and Technology for the Prevention of Postharvest Loss" Dr. Luis Rodriguez

post harvest loss reduction; funding for agricultural research

ADM Institute for the Prevention of Postharvest Loss

	<ul style="list-style-type: none">• Policy analysis <p>"Supply Chain Policy and Strategy Analysis for Prevention of Postharvest Loss" Dr. Kathy Baylis</p> <p>"The Nature of Small Landholder Agriculture in the Brazilian States of Sao Paulo and Parana and Implication for Understanding Postharvest Loss" Dr. Mary Arends-Kuenning</p>			post harvest loss reduction; funding for agricultural research
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ADM Institute for the Prevention of Postharvest Loss

	<ul style="list-style-type: none">•Education, training and information transfer <p>"Education, Training and Information Transfer to Minimize Postharvest Losses – Scientific Animations Without Borders"" Dr. Barry Pittendrigh"</p>			post harvest loss reduction; funding for agricultural research
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ADM Institute for the Prevention of Postharvest Loss

Indonesia	ADM Cocoa Supports Successful Training Of Indonesian Farmers	2013-present	<p>The SCPP (Sustainable Cocoa Production Program), a training program supported by ADM's sustainability program, S.E.R.A.P. (Socially and Environmentally Responsible Agricultural Practices), IDH (The Sustainable Trade Initiative) and SECO (Suisse State Secretariat for Economic Affairs) and implemented by Swisscontact, is experiencing promising success in Sumatra, Indonesia.</p> <p>Three hundred Indonesian farmers, one third of which were women, attended the first phase of the pilot training program. Since the inception of the program in October 2012, tests have shown that there have been significant developments in the understanding of cocoa quality and increased productivity. The program has led to the advancement of gender equality, which is a key issue in improving the livelihoods of local farmers and their communities. Throughout the program, additional attention has also been given to the importance of a balanced nutrition.</p> <p>The training program focuses on good agricultural practices, with an emphasis on quality control, grafting techniques and farm management. Adequate and sufficient planting material and soil fertility, including composting technology, are also vital to the success of the program. In addition to the social and environmental aspects that are woven into</p>	<p>agriculture productivity enhancements; human capacity development; supply chains</p>
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ADM Institute for the Prevention of Postharvest Loss

			<p>the training modules, there are a variety of practical manual training exercises completed in the field.</p> <p>Further support to assist in the next phase of the program has been put in place.</p> <p>The next phase will concentrate on post-harvest processes, such as fermentation and sorting and cleaning, which each play a critical role in the intrinsic quality development of cocoa.</p> <p>Adhering to certification standards, the improvement of quality, including the degree of fermentation, all provided by S.E.R.A.P. and SCPP training, will empower Indonesian farmers to generate greater earnings from the area farmland in use.</p>	
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ADM Institute for the Prevention of Postharvest Loss

<p>China</p>	<p>ADM, China Agricultural University Look to Replace Grain in Cattle Feed with Crop Residues</p>		<p>Archer Daniels Midland Company (NYSE: ADM) and China Agricultural University today launched a research program to confirm that a portion of the corn in cattle rations may be effectively replaced with a mix of corn processing co-products and corn stover – the stalks, cobs and leaves left on farmers’ fields after the harvest. China’s livestock currently consume about 112 million metric tons of corn per year. Cattle producers may be able to reduce their animals’ consumption by more than half by using a mix of corn processing co-products and corn stover.</p> <p>In more than 20 cattle-feeding trials, which ADM has conducted in partnership with three leading U.S. agricultural research universities, researchers have been able to replace more than 60 percent of the grain in ruminants’ diets with a mixture of stover treated with hydrated lime — a common food ingredient — and high-protein distillers’ grains without negatively impacting the animals’ growth and development.</p> <p>Because China is the world’s second-largest corn consumer, the implications could be significant both for China’s dairy farmers — who may be able to sharply reduce the cost of feed in their operations — and for the country’s food security. Feeding cattle a mix of crop</p>	<p>innovative agriculture research; agriculture produc</p>
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ADM Institute for the Prevention of Postharvest Loss

			<p>residues and co-products can free up a substantial amount of grain for other uses. ADM will fund the two-year research program, and ADM researchers will work with Dr. Shengli Li, a world-renowned professor of dairy science at CAU, to conduct a series of feeding trials at CAU as well as cooperative trials with large dairy farms in China.</p>	
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ADM Institute for the Prevention of Postharvest Loss

Agri-Food and Veterinary Authority of Singapore

Project	Project Description	Subject Category
<p>Post-Harvest Technology for Fruits and Vegetables</p>	<p>AVA provides technical expertise in the areas of post-harvest handling, packaging and quality assessment and assurance of vegetables. AVA has been largely active in the following areas:</p> <ul style="list-style-type: none"> Improving the quality and extending the shelf life of vegetables in Singapore; Increasing awareness of good quality vegetables and proper handling practices; Strengthening the network of vegetable farmers, processors, traders and retailers Introducing and promoting cold chain management to the vegetable industry. <p>AVA, together with various other external associations eg. the Singapore Fruits and Vegetables Importers and Exporters Association (SFVA), and makes continuous efforts to introduce new postharvest technologies to growers, importers and retailers to ensure a stable and adequate supply of safe, wholesome and fresh quality product for Singapore.</p>	<p>post harvest loss reduction; innovative agriculture research; technology dissemination; agriculture productivity enhancements</p>

Agri-Food and Veterinary Authority of Singapore

Post-Harvest Technology for Fruits and Vegetables: Research and development (R & D)	The Post-harvest Technology Division of AVA carries out various R & D projects dealing with vegetable post-harvest technology. Some of the areas of research include: Establishing quality parameters for vegetables; Developing packaging technology for shelf-life extension of vegetables; Developing processing protocols for minimally processed vegetables; Processing; Cooling techniques and cold chain management for vegetables	innovative agriculture research;
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Agri-Food and Veterinary Authority of Singapore

<p>Transfer of technology</p>	<p>Training courses and seminars on vegetable post-harvest technology are conducted for the local vegetable industry so as to upgrade their knowledge and skills. We conduct various types of training courses and seminars in Vegetables Post-Harvest Technology such as:</p> <ul style="list-style-type: none"> Introduction of Post-harvest of Fruits and Vegetables (for farmers and /or packers) Post-harvest Handling of Fruits and Vegetables (supermarkets personnel) Pre-cooling of Leafy Vegetables (vacuum cooling and/or forced-air cooling) Minimally Processed Fresh Produce/Freshcut Processing <p>AVA also conducts courses on vegetable post-harvest technology for other countries so as to transfer technology, share information and knowledge as well as establish valuable networks with the technical institutions and personnel in other countries.</p> <p>AVA is able to provide consultancy and technical assistance in vegetable processing and product development, ie Sensory Evaluation trials, to interested companies.</p>	<p>human capacity development; post harvest loss reduction; agriculture productivity enhancements ; technology dissemination</p>
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Agri-Food and Veterinary Authority of Singapore

<p>Post-Harvest Technology for Fish</p>	<p>Being strategically positioned in the midst of the major fishing countries in Southeast Asia, Singapore sees the opportunity to develop and expand its seafood processing industry. The industry has upgraded into a highly automated and high capacity fish product manufacturing business, catering for both domestic demand and export to the US, EU and Australia.</p> <p>Since the late 1970s, AVA has been instrumental in turning the fish processing industry from a predominantly domestic, labour intensive, backyard industry into a mechanised and later automated, modern one that is growing in its export markets. This success is the result of years of working closely with and providing training to the industry as well as upgrading the skill-set through the introduction of Japanese technology adapted to suit the local industry. The use of alternate raw materials as well as mechanisation and the development of value-added products has also contributed to this success.</p> <p>Notable among the contributions of AVA to the industry was introducing the concept of HACCP to the seafood processing industry, and assisting individual manufacturers to develop their own HACCP programmes. AVA also played a key role in assisting the local fish processors to set up the Seafood Industries Association, Singapore (SIAS). The SIAS represents the seafood processing, manufacturing and trading companies in Singapore. AVA continues to work closely with SIAS, SFMA (Singapore Food Manufacturers' Association) and other government agencies to upgrade the local fish processing industry.</p> <p>With an aim to aid the local fish processing industry, AVA has been largely active in the following areas:</p> <ul style="list-style-type: none"> Assisting the aquaculture industry in promoting the utilisation of farmed fish through product development Assisting the fish processing industry to develop HACCP systems Assisting the fish processing industry in developing value-added products <p>The AVA manages the Marine Fisheries Research Department (MFRD), sited at the Lim Chu Kang Agri-Bio Park. MFRD is one of the four Departments of the Southeast Asian Fisheries Development Center (SEAFDEC), of which Singapore is a member country.</p>	<p>agriculture productivity enhancements ; human capacity development; improved access to regional and global markets</p>
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Agri-Food and Veterinary Authority of Singapore

Currently, there are three projects under the MFRD programmes:

1. Chemical & Drug Residues in Fish and Fish Products – Biotoxins monitoring in ASEAN region
2. Traceability Systems for Aquaculture Products in ASEAN.
3. Utilization of Freshwater Fish for Value-Added Products:

Agri-Food and Veterinary Authority of Singapore

<p>Post-Harvest Technology for Fish:Transfer of technology</p>	<p>AVA organises study trips for industry members so that they can upgrade their knowledge and skills as well as establish valuable networks with seafood industries in other countries.</p> <p>AVA also organises seminars and workshops on HACCP as well as fish processing and product development for the local seafood industry.</p> <p>AVA is able to provide consultancy and technical assistance in fish processing and product development ie Sensory Evaluations trials, to interested companies.</p>	<p>human capacity development; improved access to regional and global markets</p>
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Agri-Food and Veterinary Authority of Singapore

<p>Agrotechnology Parks</p>	<p>The need to maximise output from Singapore's limited agricultural land led AVA to spearhead a move towards agrotechnology, which is the application of modern technology and life sciences to intensive farming systems. In 1986, AVA embarked on its Agrotechnology Programme which comprises 3 components: The development of Agrotechnology parks in Singapore to house modern intensive farms; The development of agrotechnology and agri-biotechnology (the latter defined as the knowledge in agriculture and molecular biology applied to large-scale, intensive farming); The promotion of investments in the agri-industry Agrotechnology Parks are modern agriculture estates developed with the necessary infrastructure for farming. There are Six Agrotechnology Parks in Singapore. They are located at Lim Chu Kang, Murai, Sungei Tengah, Nee Soon, Mandai and Loyang.</p> <p>These parks occupy a total land area of 1,465 ha and nearly 700 ha have been allocated to over 200 farms for the production of livestock, eggs, milk, aquarium and food fish, vegetables, fruits, orchids, ornamental and aquatic plants, as well as for the breeding of birds and dogs. The modern farms in the Agrotechnology Parks develop, adapt and showcase advanced technologies and techniques for intensive farming systems, and for export of high value and quality products and services to other tropical countries in the region</p>	<p>innovative agriculture research; agriculture productivity enhancements ; technology dissemination; infrastructure development</p>
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Cargill

Country	Project	Time Frame	Description	Subject Category
United States	On-Farm Storage		On-farm storage program provides qualifying farmers with a free grain storage bin in exchange for a multi-year grain delivery commitment. Farmers gain flexibility to better time the sale of their crops to coincide with higher prices.	agriculture productivity enhancements ; improved access to regional and global markets; technology dissemination; supply chains
Mexico			Cargill funds a program for white corn farmers that, over the next 5 years, will help more than 300 farmers improve their productivity and standards of living. After frost damaged a major portion of the white corn crop in Mexico, Cargill visited farmers to estimate crop damage, then found ways to supplement the local crop with white corn from elsewhere, including South Africa and the United States. They imported yellow corn for use as animal feed, freeing up white corn to be used in making tortillas, a staple of the Mexican diet. Cargill moves food from areas of surplus to areas of deficit to improve food security.	agriculture productivity enhancement; supply chains
China			Across China, more than 3.2 million farmers have participated in Cargill's productivity-enhancing programs on animal nutrition, sanitation, genetics and farm management. Cargill conducts more than 20 training sessions per day to help farmers improve efficiency and raise more food safely and sustainably.	agriculture productivity enhancement; human capacity development; increased capacity of agriculture systems to adapt to

Cargill

				climate change
Indonesia			Cargill partnered with Institut Pertanian Bogor to build Indonesia's first palm oil teaching farm to help smallholder farmers improve their productivity and standards of living.	agriculture productivity enhancements ; human capacity development
Vietnam	The Cargill Sustainable Cocoa Program		<p>In Vietnam, Cargill has trained more than 10,000 farmers in best practices for cocoa farming, harvesting and fermentation technology. The Cargill Sustainable Cocoa Program is working to improve the lives of cocoa farmers and their families and to secure the long-term sustainability of cocoa production.</p> <p>By introducing transparent business practices and teaching more sustainable agricultural practices, we are enabling farmers to increase their yields and their incomes. As well as these efforts to strengthen the cocoa supply chain, we are improving livelihoods in cocoa farming communities by supporting better access to education and healthcare. Growing cocoa and processing pods in his fermentery, which employs eight workers, farmer Nguyen Binh estimates his income has increased fivefold.</p>	agriculture productivity enhancements ; human capacity development; increased capacity of agriculture systems to adapt to climate change

Cargill

Thailand	Tapioca in Thailand	2012-2015	Working with Cargill agronomists, Thai farmers are making changes that can double their tapioca yields, such as planting for better drainage, spacing out plants and using improved hybrids. Cargill is helping farmers mechanize harvesting, which also keeps children in school. Cargill's Farmers Academy has trained more than 3,500 tapioca farmers in planting practices to help them increase yields on more than 4,800 hectares. Another 100 Thai tapioca farmers have visited Cargill's three demonstration farms where they increased root production by more than 70% in 2011-2012.	agriculture productivity enhancements ; human capacity development
China	Improving Irrigation		In China, Cargill is working in cooperation with the government to improve farm irrigation in rural areas to conserve water, increase crop yields and as a result, farmer incomes. The project helps farmers in Henan, Sichuan and Xinjiang provinces, which have been hit by drought. China's agricultural irrigation water accounts for more than 60 percent of the country's annual water consumption.	agriculture productivity enhancements ; increased capacity of agriculture systems to adapt to disasters
Indonesia, China	Contributing to environment and agriculture research		Cargill has contributed \$5 million over 10 years to support ongoing research by the Stanford Center on Food Security and the Environment (FSE), including oil palm and land use issues in Indonesia, the study of aquaculture feeds in China and assessments of biofuels in the United States, Africa and Asia. The Center's research findings are helping inform and shape policy in these areas.	innovative agriculture research; funding for agriculture research

Cargill

United States	Agriculture Research		Developed a program to identify the best combination of crop inputs and agronomic practices. The result has been average yield increases of 20 percent.	innovative agriculture research; agriculture productivity enhancements
Canada	Cargill AgHorizons		Help farmers maximize yields by optimizing inputs. In 2012, they introduced FieldSense, a program that analyzes field characteristics, such as organic matter and moisture, to create fertility plans, so farmers apply crop nutrition with extreme precision to increase productivity. The program is expected to expand to 200,000 acres by 2014.	agriculture productivity enhancements ; human capacity development
China	Promoting Responsible Agricultural Practices		In northeastern China, corn yields are not reaching their full potential and input inefficiencies are high, resulting in excess water use, runoff, and water quality problems, as well as GHG emissions. To improve corn production, mitigate environmental impacts and improve food security, Cargill is partnering with the World Wildlife Fund and one of their customers to train 25,000 corn farmers by the end of 2014. They are establishing demonstration farms to highlight sustainable agricultural practices - from planting, tilling and harvesting to storage and selling. The goal is to improve yields by 20 percent, reduce waste by 10-15 percent, conserve water and reduce overall environmental impact, including carbon footprint reductions from fertilizer optimization. Ten demonstration farms are underway in northeast China's Jilin Province, located in the Amur-Heilong River Basin, a WWF priority ecoregion.	agriculture productivity enhancements ; human capacity development; increase capacity of agriculture systems to adapt to climate change

Cargill

Global	Flour Fortification		Donated 1 million to promote micronutrient fortification of flour around the world.	funding for agricultural research
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Coca-Cola

Country	Project	Time Frame	Description	Subject Category
Australia	Farming for a healthier Great Barrier Reef		<p>Through our Coca-Cola Foundation, we provide financial support to Project Catalyst, an award-winning, five-year, \$26 million partnership among our Company, WWF, Reef Catchments (Mackay Whitsunday Isaac Natural Resource Management), the Australian government, farmers and others. Project Catalyst promotes farmer-driven innovations that reduce pesticide and fertilizer runoff into the Great Barrier Reef lagoon and the freshwater catchments that drain into it. The project provides funding and technical expertise to farmers who have developed new sustainability practices but need resources to implement them. Communication is also a key part of Project Catalyst; newsletters and a website promote innovations, enabling growers to share best practices and lessons learned.</p> <p>Since its launch in 2009, Project Catalyst has increased from 19 participating cane growers and 4,800 hectares of farmland to 78 growers and more than 49,000 acres. The project has improved the quality of more than 101,725 megaliters (more than 26 billion gallons) of runoff by reducing the amount of nitrogen, phosphorus, herbicide and other pollutants flowing into the Great Barrier Reef. Through The Coca-Cola Foundation, our Company has contributed more than \$1.77 million to the project.</p> <p>In 2011, Project Catalyst engaged more land managers. Inspired by the project's outcomes to date, a number of farmers independently emulated practices piloted by Project Catalyst growers, improving runoff and drainage water quality by an additional 17,500 megaliters (4.6 billion gallons) on 8,649 acres.</p>	

Coca-Cola

			<p>In November, several Project Catalyst partners hosted the 2011 Bonsucro Annual General Meeting, bringing together Bonsucro growers from multiple countries to learn about the methods developed as part of the project. Additionally, in February 2012, Project Catalyst held its second annual grower’s forum, providing an arena for Queensland growers to exchange information on best practices and learn about methods for reducing chemical runoff.</p>	
China	Drought relief in Guangxi	2011-2012	<p>The Guangxi Sustainable Sugarcane Initiative is part of our partnership with UNDP, the Chinese Government and the government of the Guangxi Zhuang Autonomous Region in southern China. Launched in 2010 in the counties of Shangzi and Longzhou and expanded to a few other counties in 2011, the initiative seeks to provide sugarcane farming communities in drought-stricken Guangxi with improved access to drinking water and more efficient irrigation. New infrastructure will direct treated wastewater from a sugar mill to the cropland, providing irrigation and possibly better yields as a result of nutrients in reclaimed water.</p> <p>With the completion of the Shangzi and Longzhou projects in 2011, the project has benefited about 3,000 farmers, indirectly benefited more than 100,000 rural residents and improved 30,476 acres of sugarcane. Two other projects in Guangxi are under way and expected to be completed in 2012.</p>	

Coca-Cola

China			<p>In partnership with Cargill, Incorporated, and WWF, we launched a sustainable corn project to improve the livelihoods of farmers and protect biodiversity by improving yields, reducing waste, conserving water, protecting wetlands and reducing the environmental impact of agriculture in Jilin Province, China.</p>	
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Croplife Asia

Country	Project	Project Description	Subject Category
China		<p>With over 38 percent of China’s labour force in agriculture or farming related industries, China’s Ministry of Agriculture strives to modernize farmers’ approaches to growing crops with the proper use of crop protection products. Since 2003, CropLife China has joined with the National Agri-Technical Extension and Service Centre (NATESC) of the Ministry of Agriculture and multiple provincial plant protection stations to help farmers raise yields in a sustainable manner. Programs on sustainable agriculture include the responsible use of crop protection products, secure storage and environmental protection through the management of empty containers. Every year, thousands of farmers throughout China have benefited from CropLife China’s training initiatives. In keeping with this positive trend for China, again for CropLife China, 2011 was a year of Stewardship successes:</p> <ul style="list-style-type: none"> • Over 750 farmers, government extension workers and retailers were trained under the Henan Wheat Professional Spray Team Training Project. • Approximately 2,300 farmers were trained through the Hubei Pesticide Empty Container Management Model Pilot Project. • More than 4,000 farmers were trained as part of the Mei County Pesticide Secure Storage and Safe Use Training Project. <p>China’s Model Training Program: Best Practices</p>	<p>agriculture productivity enhancements ; post harvest loss reduction; human capacity development; technology dissemination</p>

Croplife Asia

	<p>Over the years 2010 and 2011, CropLife China in partnership with NATESC has been devising a model in training to increase the knowledge and expertise of spray teams and has established a successful application model of best practices by learning how they can improve in their training. In the past, abusive and indiscriminate use of pesticides by farmers has made pests resistant, leading to even more use of pesticides, resulting in environmental pollution. This downward spiral contributed to a rapid decline in output and quality of crops, severe damage to the environment and grave risk to the health of farmers. Farmers urgently needed to change their behaviours, and most still do. The first step in making a change was to provide training to make pesticide use and application safe and scientifically efficient. This is part of the basic training that farmers learn from the CropLife China best practices model today.</p>	
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Croplife Asia

China	Training on Safe and Scientific Farming in Henan Province	<p>In 2011, Croplife China, NATESC and the Henan Plant Protection Service worked together to train the Wheat Professional Spray Team in the counties of Weishi, Minquan and Boai in Henan Province, based on the successes of previously training the Rice Professional Spray Team in Hunan Province. Throughout this process, they evaluated each step and, in doing so, created a training model for crop spray teams. The best practices learnt from these professional spray teams can now be applied to other field crop spray teams, such as the one for corn.</p>	agriculture productivity enhancements ; post harvest loss reduction; human capacity development
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Croplife Asia

China	Empty Container Management Model Pilot Project	<p>The three-year (2010-2012) Empty Container Management Model Pilot Project held in eight counties in Hubei Province sets a new standard for respecting the environment and creating clean farms by changing farmers' behaviours. It was a collaborative effort supported by CropLife China, the Institute for the Control of Agrochemicals, Ministry of Agriculture (ICAMA) and the German International Co-operation (GIZ), who all reported its success in their respective communications. The Council of Hubei was pleased that GIZ led the Pilot Project since this well-respected partner elevated the Pilot Project's importance as a model for others to use throughout China. More than 2,300 people were trained in Responsible Use and began triple rinsing through the Hubei Pesticide Empty Container Management Model Pilot Project.</p>	<p>human capacity building; increased capacity of agriculture systems to adapt to climate change</p>
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Croplife Asia

Indonesia	<p>To solve these problems, CropLife Indonesia, with the support of CropLife Asia, the Plant Protection Agency of the Agriculture Department of Garut District, the Agriculture Faculty of Garut University (UNIGA), and Indonesia's sprayer industry of Golden Agin, held farmer training programs on the maintenance of knapsack hand sprayers to prevent pesticide leakage, within the context of the Five Golden Rules of handling pesticides properly and GAP, along with the teachings about IPM. Over 150 farmers came from 15 villages in the five sub-districts of Garut Regency District. In the training sessions, farmers learnt the importance of maintaining their knapsack sprayers and how to use crop protection products judiciously, thereby improving food safety, minimizing risks to their own and others' health and reducing negative impacts on the environment.</p> <p>In addition, once farmers learnt how to use the right amount of pesticides on their crops from regularly maintained knapsack sprayers, they were able to reduce their expenditure on crop protection products. This not only translated into higher productivity and profitability for the farmers, but also meant that they were able to earn quality certificates and labels for their produce. This further increased their income by</p>	agriculture productivity enhancements ; human capacity development
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Croplife Asia

	<p>giving them greater access to more lucrative export markets.</p> <p>Farmers learnt the importance of the Five Golden Rules of handling crop protection products. These rules were provided to the farmers in a folder with a guide booklet on knapsack maintenance and a CD on responsible and safe use as well as protective equipment such as a face visor.</p> <p>UNIGA monitored the success of the training through a Farmers' Behaviour Change Assessment. The pre-training base line survey showed that most farmers were unaware of the importance of maintaining their knapsack sprayers and calibrating the sprayers, wearing protective clothing and equipment, the hazard to their health by not doing so, and the money they lost due to the sprayer leaking.</p> <p>The post-training survey highlighted the positive change in the farmers' behaviour, specifically how they repaired their sprayers immediately after the training, and increased their personal protection with the proper clothing and equipment.</p>	
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Croplife Asia

Philippines	<p>In 2011, CropLife Philippines focused on training farmers in the province of Benguet with its temperate climate and high altitude. Since it is an ideal place for producing vegetables, Benguet is often called the ‘Salad Bowl of the Philippines’ with cabbage, lettuce, carrots, potatoes, Baguio beans, peas, and strawberries contributing to the livelihoods of farmers.</p> <p>Co-ordinated by CropLife Philippines, its member companies and the local governments or barangays (the native Filipino term for a village, district or ward, the smallest administrative division in the Philippines) and with the cooperation of the Fertilizer and Pesticide Authority, training on GAP, with the emphasis on the proper use, handling, storage, and emergency procedures to prevent pesticide poisoning, was given to over 5,200 farmers in 2011. In turn, the farmers then shared the training with others in their farming community. This multiplier effect contributed to close to 52,000 farmers learning about the safe and responsible handling and use of crop protection products.</p>	agriculture productivity enhancements ; human capacity building
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Croplife Asia

<p>Taiwan</p>	<p>Congruent with the Taiwanese government’s plan to turn the country’s agriculture industry into a competitive and green sector, the plant science industry is actively involved in helping growers harness technology to increase yields while adopting environmentfriendly farming practices.</p> <p>The principal government agency overseeing agricultural affairs in Taiwan is the Council of Agriculture (COA). Responsible for monitoring pesticide residues, developing plant protection technologies, providing technical services, and establishing evaluation methods and guidelines to manage pesticides, Taiwan’s Agricultural Chemicals and Toxic Substances Research Institute (TACTRI) of the COA is working with CropLife Taiwan to ensure local farmers understand how to effectively use and safely apply, store and dispose of crop protection products. In addition, every city and county has a department of agriculture and widespread farmers’ associations, with the latest count being over 300 associations in total.</p> <p>Partnering with TACTRI and the farmers’ associations, CropLife Taiwan has been training farmers nationwide on careful and safe pesticide use. There</p>	<p>agriculture productivity enhancements ; post harvest loss reduction; human capacity development; increased capacity of agriculture systems to adapt to climate change</p>
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Croplife Asia

are presently many other associations in Taiwan that are concerned with food safety, for example, the Homemakers' Union and the Chinese Consumer's Foundation of Taipei.

Through farmers' meetings and the dissemination of booklets, CDs and personal protection equipment, CropLife Taiwan is stepping up its efforts to educate farmers on product Stewardship to ensure food safety. For example, CropLife Taiwan consistently advocates to its members and farmers' associations the Five Golden Rules of responsible use.

During the 280 meetings held in 2011 in Taiwan on the Code of Conduct for crop protection products, including the Five Golden Rules, approximately 10,000 farmers were trained in responsible use – to protect themselves, their families, their crops, and their farm land.

CropLife Taiwan has also been working with the universities in Chatoyant and Chiai to address empty crop protection container collection, completing pilot projects in the vegetable-growing townships of Yunlin and Chunghwa. The successes of these pilot projects will be applied to other areas of Taiwan to mitigate pollution on the farm.

Croplife Asia

Thailand	<p>To maintain and grow this market, applying the internationally accepted IPM and GAP, including the adherence to MRLs, are essential to Thailand's success as an exporter. However, thousands of the country's small fruit farmers used to struggle with poor yields. In addition, many lacked food safety knowledge including the need to meet global safety standards for exporting. They used to apply pesticides excessively and ineffectively. They had little knowledge of efficient pesticide use, person safety and environmental protection. The results included low yields, high costs and risks of pesticide exposure.</p> <p>Over the years, the Thai Crop Protection Association (TCPA) has helped small landholders in many key fruit-producing areas in Thailand. For example, in 2010 and 2011, almost 37,200 farmers were trained in Responsible Use and IPM in Chantaburi in Eastern Thailand. It is from these positive results that the Association could apply its successful training approaches and multiply its achievements with training farmers in Phitsanulok in 2011.</p>	agriculture productivity enhancement; human capacity development
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Croplife Asia

<p>Vietnam</p>	<p>To transfer skills and technology to Vietnam’s farmers, CropLife Vietnam continues to work closely with the Plant Protection Department of the Ministry of Agriculture and Rural Development (MARD) on farmer training programs about effective crop protection methods and their safe use. Through successful outreach within farming communities from the Train-the-Trainer approach, a total of approximately 388,000 farmers were trained in 2011, of which 35,000 were female farmers. Also, 2,700 retailers were trained, of which 800 were female retailers. These milestones are important victories in reaching more farmers and gaining traction in farmer communities with Stewardship messages. Likewise, in 2011, CropLife Vietnam’s Stewardship outreach included working with MARD on a broadcast about its farmer training on the Five Golden Rules of Stewardship for national television. It also produced an entertaining and educational farmer training video that continues to be highly effective in reaching and teaching farmers in remote areas. In addition, 4,000 posters on the Five Golden Rules of Stewardship were posted in crop protection retail shops and public areas to reinforce the training messages with farmers.</p>	<p>agriculture productivity enhancements ; human capacity development; technology dissemination</p>
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Center for Strategic International Studies (CSIS)

Project	Project Description	Subject Category	Additional Info
Global Food Security Project	<p>In a time when agriculture is an increasingly important factor in international affairs, CSIS created a program dedicated to providing research, analysis and policy recommendations that can effectively enhance global food security. In 2050, the global population is anticipated to top 9 billion people and food supply will need to more than double – under increasingly tight land and water constraints. In recent years, the world has seen a surge of food price volatility, limiting both access to and availability of food, especially staple items upon which much of the world’s poor depend. In 2008, 40 countries experienced riots and protests because of high food prices. The number of people living with chronic hunger is roughly one sixth of the world’s population and shows no signs of abating. Meanwhile, obesity is on the rise in developed and developing countries, alike. The key challenges will continue to be finding ways to increase production with fewer resources, and improve access to food.</p> <p>The CSIS Global Food Security Project aims to increase the level of dialogue surrounding challenges to food security and help develop both the policy solutions and political will to address them. We engage leading thinkers from the U.S. and foreign governments, Congress, the private sector, academia, and the NGO communities in our efforts. Our work emphasizes the importance of achieving long-term global food security through investing in agricultural research and development to increase agricultural productivity, especially in developing countries; engaging the private sector in agribusiness development opportunities; and creating favorable trade and investment climates to improve global access to food.</p>		

Center for Strategic International Studies (CSIS)

<p>Pathways to Productivity Blog</p>	<p>Strategies aimed at combatting these challenges and improving food security and agricultural productivity often emphasize agricultural technologies as part of the solution. "Pathways to Productivity" publishes analysis, commentary, and fact-based posts related to the role agricultural technologies – including biotechnology and genetic modification -- might play in food security. The CSIS Global Food Security Project welcomes blog posts from the U.S. and international policymaking community, food security experts, agricultural scientists, the media, academia, the NGO community, and farmers.</p>	<p>policy research; innovative agriculture research</p>	<p>Kristin Wedding Deputy Director and Fellow, Global Food Security Project (202) 457-8779</p>
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Center for Strategic International Studies (CSIS)

<p>Task Force on Global Food Security</p>	<p>Phase I In July of 2008, the Center for Strategic & International Studies (CSIS) rapidly assembled a task force, co-chaired by Senators Richard Lugar (R-IN) and Robert Casey Jr. (D-PA), to assess the factors shaping the global food crisis. The Task Force issued a report, A Call for a Strategic U.S. Approach to the Global Food Crisis with recommendations for targeted, short-term policy actions to alleviate the rising humanitarian and security impacts of the crisis, calling for the United States to provide global leadership. The CSIS report informed the policy discussion with regard to food security that produced legislative initiatives such as the Global Food Security Act, introduced September 22, 2008, by Senators Lugar and Casey. REPORT RELEASE EVENT Phase II The CSIS Task Force on Global Food Security began its second phase in 2009, examining long-term issues that can effectively enhance global food security, including productivity, agricultural research and development, and trade. Senators Richard Lugar (R-IN) and Robert Casey Jr. (D-PA), and Representative Betty McCollum (D-MN) co-chaired the Task Force. In April 2010, CSIS released the report Cultivating Global Food Security with analysis and policy recommendations on each of these three areas. Raising Agricultural Productivity: The Task Force aims to provoke debate and offer recommendations for effectively increasing productivity, including technology, access to credit available, infrastructure, and educational partnerships. It identifies examples of success and innovation in the field and profile instances in which partner governments in the developing world are prioritizing agricultural productivity. It evaluates the status of current U.S. efforts aimed at boosting agricultural productivity. It also examines approaches to using soil and water more efficiently in a time of increasing water and land scarcity. For additional information on agricultural productivity, please see</p>	<p>policy research; innovative agricultural research</p>	<p>http://csis.org/ program/food</p>
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Center for Strategic International Studies (CSIS)

Agricultural Productivity in Changing Rural Worlds, a report by Melinda Smale and Timothy Mahoney.

Agricultural Research & Development:
U.S. public investment in agricultural research and development has lagged behind investment in research for health and other sciences. Private entities are investing in agriculture, but a structured, enhanced public component is necessary to meet the challenges of feeding a growing population and to deal with the effects of climate change. Advances in agricultural science hold tremendous promise, but require vision, enthusiasm and a long-term, sustained public commitment. The Task Force assesses the current state of the U.S. agricultural research and development agenda and discusses emerging threats to agricultural productivity, including climate-related challenges, pests, and diseases. It also explores emerging opportunities available from research, including drought- and heat-resistant crops and micronutrient fortification. For further analysis on the current state of agricultural research and development, please see U.S. Agricultural Research in a Global Food Security Setting, a report by Philip Pardey and Julian Alston.

Integrating Trade into Food Security:
CSIS's initial Task Force agreed that trade negotiations are essential, and the United States needs to take a leadership role. The second phase of the project examines in greater detail how to integrate trade into food security. The Task Force focuses on five key areas that deserve greater attention: improving markets through trade capacity building and infrastructure development, reforming U.S. trade policy, enhancing regional integration, curtailing export bans on agricultural goods, and liberalizing trade. Our discussions were informed and guided by leading trade experts with experience in the negotiations and an understanding of U.S. political sensitivities. Please see The Role of Trade and Markets in Global Food Security by Charlotte Hebebrand and Kristin Wedding for additional information on how trade can enhance food security.

DuPont

Country	Project	Time Frame	Description	Subject Category	Field1
China	Vacuum Planting Technology in China	2002-Present	<p>Chinese farmers currently feed 20% of the global population using only 9% of the world's arable land. Their traditional corn farming technique — involving planting two to three kernels of corn per mound of soil just to get one plant to grow — highlighted a need for a more efficient planting technology. While this technique may have improved the odds, it had a habit of creating high seed and labor costs. Which is why in 2002, DuPont Pioneer entered the China seed market with the goal of increasing yield by creating a high-quality seed that did not need to be planted at high rates. It wasn't long, however, before Pioneer realized seed quality was only part of the equation. Farmers there needed to address overall planting and growing concerns to be truly successful.</p> <p>Pioneer partnered with Hebei Nonghaha Agricultural Machinery Group, a local equipment manufacturer, to jointly develop a vacuum planter — the first of its kind in the country — that would allow Chinese farmers to plant corn using only one seed per mound. This project took place in shijiazhuang, China. Improved single kernel planting technology raises the productivity and efficiency of Pioneer's corn, lowers the seed volume farmers need to purchase, reduces manual labor, and ensures more land can be used for other products, like grain, diversifying and increasing the area's food production output.</p> <p>So far, it's working — single kernel planting is becoming a trend in China, and if the vacuum planter continues to be widely adopted, it's estimated that 1/3 of corn plants wasted by the manual thinning process could be saved. Additionally, China could decrease its amount of seed production land, essentially growing more grain on less land, thanks to better seeding and farming. Farmer feedback is positive, as the program benefits farmers with lower costs, less labor, increased yields, and additional revenue. This collaborative project between Pioneer, Nonghaha, and the farmers of China won the 2008 DuPont Sustainable Growth Award, in recognition of their work revolutionizing the industry</p>	innovative agriculture research, agriculture productivity enhancements ; post harvest loss reduction; technology dissemination; supply chains	

DuPont

			and allowing more of the country to be fed in a sustainable way.		
Indonesia	Improving Rice Production in Jakarta, Indonesia		<p>After a pest crisis crippled rice farms in many countries throughout Asia in 2008, DuPont developed solutions to help protect food crops and help farmers improve rice production.</p> <p>Among its efforts, DuPont™ Rynaxypyr® insecticide helped Indonesian farmers in the village of Kuta Rakyat control the pests that traditionally ravaged their harvests. Rynaxypyr® insecticide works against pests that are resistant to other insecticides, without harming beneficial species, and has an excellent environmental profile.</p> <p>These crop protection efforts in farming communities aided the quality of life in Indonesia — helping the country both feed its people and avoid the political strife and food riots that blighted many other Asian nations at the time.</p>	<p>agriculture productivity enhancements ; post harvest loss reduction; technology dissemination</p>	

DuPont

<p>Vietnam</p>	<p>Hybrid Rice Helps Improve Rice Production in High Salinity Conditions - Mekong Delta, Vietnam</p>	<p>A new hybrid seed is helping farmers in the Mekong Delta region of Vietnam produce high-yielding rice crops in support of the regionally unique farming system known as the rice-after-shrimp method. By rotating their land between rice and shrimp, farmers are making more money and providing stability for their families and local communities. The complication comes during the post-shrimp harvest, when rice yields are reduced to high salinity levels in the soil left by the salt water used to produce shrimp. Open Pollinated Varietal rice seed (OPV) are particularly affected by these unfavorable pH conditions. DuPont Pioneer worked with local farmers to introduce the PHB71 hybrid seed as a workable solution to the challenges thrown up by the rice-after-shrimp farming method. Pioneer® brand PHB71 seed is proven to have a high tolerance to high salinity levels in soil – even increasing yield per hectare by 30% - 40% compared to the OPV rice seed.</p>	<p>innovative agriculture research; agriculture productivity enhancements ; post harvest loss reduction; supply chains</p>	
<p>Chile</p>	<p>Sustainable Aquaculture - Creating a Healthy Source of Protein - Patagonia, Chile</p>	<p>Chilean salmon producers at AquaChile found themselves in a challenging position. While committed to providing a healthy source of protein and Omega 3 to the world’s growing population, they were also passionate about protecting the wild fish in their ocean through sustainable aquaculture. DuPont recognized that the use of essential Omega 3 fatty acids produced by yeast-based fermentation could significantly decrease the use of fish oil in salmon aquaculture — it could cut the four kilograms of wild fish once needed to produce farmed salmon (4:1) down to 1 kilogram (1:1), while still maintaining nutritional value and quality. Together AquaChile and DuPont, with support from the World Wildlife Fund, developed a comprehensive and sustainable solution to salmon farming. The story of how they made this happen is seen through the eyes of a local salmon farmer.</p> <p>Together with AquaChile, DuPont is introducing an innovative new way to provide nutritious protein for a growing population, while sustainably maintaining our fish stocks for generations to come.</p>	<p>agriculture productivity enhancements ; increased capacity of agriculture systems to adapt to climate change; supply chains</p>	

DuPont

Mexico	Advancing Food Packaging Technology with DuPont Surlyn		<p>Surlyn[®], a resin, helps enable a duo-chamber pouch package. This unique package safely separates purified water from infant formula, allowing it to withstand the distribution journey and lasts up to 12 months without refrigeration.</p> <p>Through collaborating with DuPont and the State of Chihuahua, Mixpack is able to provide a healthy, safe food source to the Tarahumara Indians living in some of the most remote areas in Chihuahua State.</p>	post harvest loss reduction; supply chains	
United States	Food Safety Tests for the Industry		<p>DuPont Qualicon was among the first to develop a diagnostic test for E. coli O157:H7, the type most frequently associated with severe illness from food contamination outbreaks. Now, DuPont and the Agricultural Research Service of the U.S. Department of Agriculture (USDA ARS) have agreed to collaborate on the development of a new test to detect the “Big 6” strains of hard-to-identify, toxin-producing E. coli (STEC O26, O45, 103, 111, 121, 145). This new test will use BAX[®] Detection System technology from DuPont Qualicon — a fast, accurate DNA-based method that allows testing for multiple pathogen targets with minimal hands-on and processing time. This provides comprehensive analysis of samples, more precise results, and extreme reliability. With certifications and regulatory approvals in the Americas, Asia, and Europe, the BAX[®] detection system is recognized as one of the most advanced pathogen testing systems available — and one of the best tools the food industry can share in its ongoing efforts to help ensure a safe food supply for the world.</p>	supply chains	

Earth Island Institute

Country	Project	Time Frame	Project Description	Subject Category
	Climate Wise Women		<p>Climate Wise Women is a global platform for the promotion of women’s leadership on climate change. Through powerful personal narratives, Climate Wise Women gives a human face and voice to an issue that sits squarely at the nexus of the conversation on gender equality, environmental justice, food security, the eradication of extreme poverty, and public health.</p> <p>Climate Wise Women presents public ‘conversations’ between women community leaders from around the globe at colleges and universities, for community and business groups, and at major world events on climate, climate justice, and gender equality, that engage both panelists and audience members alike. The Climate Wise Women, a rotating group of distinguished international community activists, share their compelling stories with those of local women leaders in an interactive format that brings home the very real connections between the developed and developing worlds.</p>	Human Capacity Development
USA	Food Shift	2011-present	<p>Food Shift is an Earth Island Institute sponsored project dedicated to building a more just and sustainable food system that curbs waste, empowers communities, respects the environment and nourishes all. Food Shift educates and empowers consumers, businesses and communities by increasing awareness about food waste and inspiring food related behavior change. By trimming our waste and diverting food loss, we can feed the hungry, create jobs, combat global warming, conserve natural resources, and cultivate more sustainable communities.</p> <p>A food system that operates sustainably is possible. There are countless examples of ways in which local initiatives are taking</p>	increased capacity of agriculture systems to adapt to climate change

Earth Island Institute

		<p>back their food supply and creating positive community solutions. By connecting the dots between food waste and hunger Food Shift has identified a unique and important niche in the food system that no one else is tackling holistically. Food Shift is framing the issues in a new way which engages the community as part of the solution and connects and utilizes available assets and resources for maximum impact. Food Shift was launched in Oakland, CA in August 2011.</p>	
	Other Food Security Projects	<p>Earth Island Institute has several other food security projects and agriculture sustainability initiatives however they take place either in Africa or South Asia. A link can be found here: http://www.earthisland.org/index.php/search/results/?cx=007417508850261940922%3A9ngcdbwgr8&cof=FORID%3A11&q=food+security&sa.x=-955&sa.y=-45</p>	

General Mills

Country	Project	Time Frame	Project Description	Subject Category
Canada	The Canadian Field to Market Sustainability Project		<p>General Mills is working with grower groups to study two decades of sustainability indicators on eight different crops, including wheat, oats, lentils, canola, peas and flax. Sustainability indicators include energy use, land use, soil loss, and climate impact.</p> <p>The Canadian Field to Market Sustainability Project will serve as a “report card” of sorts for the sustainability of these Western Canadian crops. The research gives a look back at how various farming practices have impacted key environmental metrics over time and provides a baseline to look forward as we measure future progress.</p>	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change

IFAD Operations

Country	Time Frame	Project	Total Costs	Description	Subject Category
China	2012 - 2017	Hunan Agricultural and Rural Infrastructure Improvement Project	\$93.2 million	<p>The objective of this project is to increase incomes and improve food security for 182,000 rural households in Hunan Province. To that end, the project aims to improve rural community infrastructure and support sustainable agricultural development and marketing.</p> <p>The project is being implemented in nine Hunan counties that comprise the poorest, least fertile, least accessible and least developed areas of the province. Almost 600 target villages with the province's highest incidence of poverty have been identified as prime recipients of project support.</p> <p>IFAD-supported activities will: Provide the rural poor with productive assets and community facilities Develop commercial agriculture through improved value chains and market access Support farmers' cooperatives.</p>	Agriculture productivity enhancements; improved farmer access to capital finance and risk management instruments; supply chains, infrastructure development

IFAD Operations

China	2009 - 2015	Dabieshan Area Poverty Reduction Programme	\$70.9 million	<p>The aim of this programme is to support innovative and diversified development modules in eight poor counties in Xinyang Prefecture, located in Hunan Province, east-central China. The objective is to increase incomes and reduce poverty in poor farm households, including very poor and vulnerable low-income families, in a sustainable manner that also promotes gender equality.</p> <p>The programme works to strengthen agricultural support services so that participants have better access to knowledge that can improve their capacity to adopt improved technology. It supports the development of private farmers' cooperatives and ensures that their membership includes poor producers, who benefit from improved access to inputs and markets.</p> <p>The programme focuses on three main areas:</p> <ol style="list-style-type: none"> 1) Agricultural development and market access, linking poor women and men with sustainable production technologies, know-how, investment support and information 2) Strategic support to very poor people, improving their access to community infrastructure and services, and increasing their integration into agricultural production and markets 3) Support for village-level participatory planning. 	human capacity development; improved access to regional and global markets
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IFAD Operations

Vietnam	2009 - 2015	Pro-Poor Partnerships for Agroforestry Development Project	\$25.3 million	<p>The project targets poor upland farmers living in the three poorest districts of Bac Kan Province, in northern Viet Nam.</p> <p>The project will help farmers in poor communities in upland areas whose livelihoods depend on cultivating hillside slopes and collecting non-timber forest products on the small areas of forest land allotted to them. The project has the aim of benefiting poor farmers through:</p> <ol style="list-style-type: none"> 1) greater equity in allocation of forest land 2) development of more sustainable hillside farming systems 3) diversification of income-generating opportunities 4) piloting payment for environmental services <p>Activities include establishment of village forestry management boards. The project will encourage poor households and community groups to apply for certificates giving them forest land use rights, and to participate in the preparation of forestry management plans.</p>	<p>human capacity development; Improved farmer access to capital finance and risk management instruments; increased capacity of agriculture systems to adapt to climate change;</p>
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IFAD Operations

Vietnam	2011 - 2016	Agriculture, Farmers, and Rural Areas Support Project in the Gia Lai, Ninh Thuan and Tuyen Quang Provinces	\$65.4 million	The Tam Nong Support Project will assist in establishing the policy framework and institutional arrangements and in developing the capacities and approaches necessary for the implementation of the Government of Viet Nam's new rural development policy, known as Tam Nong or Resolution 26 on Agriculture, Farmers and Rural Areas.	
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IFAD Operations

Philippines	2009 - 2016	Rapid Food Production Enhancement Programme (RaFPEP)	\$46.6 million	<p>The programme will support the government's 2009-2013 Rice Self-Sufficiency Plan, a nationwide effort to regain self-sufficiency in rice production and to respond to the food price crisis that emerged in 2008. IFAD's investment will provide support for securing good quality seed to boost rice production and for rehabilitating and developing irrigation works. The programme targets poor paddy farmers and poor irrigators' associations in various rice-growing areas, with the objective of achieving an increase in paddy production.</p> <p>The RaSSFIP will focus on acquisition and distribution of certified seeds for the 2009 wet season crop. IRPEP will work in the longer-term to:</p> <ol style="list-style-type: none"> 1)strengthen irrigation associations 2)provide production inputs and support services 3)develop and maintain irrigation and rural infrastructure 4)develop marketing and the post-harvest stage of production 5)promote policy dialogue <p>IFAD will directly supervise the programme, which is an innovative combination of emergency assistance and a development project. It brings together an urgent response to prevent an emergency, by supplying seeds rapidly to increase paddy production, and a medium-term irrigation rehabilitation effort that aims at increased and sustained production.</p>	agriculture productivity enhancements; human capacity development
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IFAD Operations

Philippines		Integrated Natural Resources and Environmental Management Project	\$148.6 million	<p>This project aims to improve the condition of watersheds and the livelihoods of poor rural people in four priority river basins, selected on the basis of their biophysical condition, socioeconomic and conservation values and state of degradation.</p> <p>The project is targeting 23 watersheds in nine provinces, comprising over 1.13 million hectares with an estimated population of around 2.7 million. In the selected watersheds, it will reduce degradation caused by deforestation and unsustainable farming practices, while generating tangible economic benefits.</p> <p>Mechanisms to achieve these objectives include: Payments for water regulation, soil conservation, carbon offsets and biodiversity Income-generation from sustainable use and management, and value-added processing, of forest products Improved natural resource productivity and climate resilience.</p> <p>The project will benefit approximately 220,000 people – the majority from vulnerable and marginalized sectors – with a particular focus on indigenous peoples and resource-poor communities.</p>	increased capacity of agriculture systems to adapt to climate change
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IFAD Operations

Philippines	2008 - 2015	Second Cordillera Highland Agricultural Resource Management Project (CHARMP)	\$26.6 million	<p>The aim is to reduce poverty and improve the livelihoods of indigenous peoples living in farming communities in the mountainous project area. The indigenous peoples consist of many tribes whose main economic activity is agriculture. More than half of the people in the area are poor.</p> <p>The objectives are to:</p> <ol style="list-style-type: none"> 1) increase household income of poor farmers through sustainable agricultural development 2) enhance the quality of life in the communities by improving land tenure security, food security and water shed conservation. <p>In line with IFAD's strategy of supporting sustainable natural resource management, the project focuses on the value of indigenous farming systems, which are environmentally sustainable. The aim is to increase the added value of products from farming systems that are both organic and environmentally sustainable. The project supports the government's decentralization policy by promoting the participation of local communities in planning activities, and by supporting local government units providing services to the communities. It also supports implementation of the Indigenous Peoples Rights Act, landmark legislation that recognizes the values and institutions of indigenous people and their right to manage the natural resources in their domains.</p>	human capacity development; increased capacity of agriculture systems to adapt to climate change
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IFAD Operations

Philippines	2006 - 2013	Rural Microenterprise Promotion Programme (RuMEPP)	\$27.5 million	<p>Building on the experiences of the IFAD-funded Rural Microenterprise Finance Project, the programme targets the poorest 19 provinces in five of the poorest regions in the country, focusing on areas with the highest potential for enterprise development. The aim is to raise the incomes and improve the livelihoods of poor rural people by providing them with loans and other financial services, and with business development services such as capacity-building, market linkages and product development. It will work with poor microentrepreneurs and other poor people involved in microenterprises including women, young people and indigenous peoples. Although the programme will focus on formation and expansion of microenterprises at the lower and poorer end of the scale of assets, it will also include larger microenterprises, which are an important source of employment.</p> <p>The programme's objective is to see increasing numbers of new and existing rural microenterprises expanding and operating profitably and sustainably. Investments will support microfinance and credit, microenterprise promotion and development, and programme and policy coordination. Programme operations will adhere to sound financial principles, and resources will be concentrated in a limited area to avoid diluting their impact. Poor rural people will have a say in programme planning and in adjustments that are required during implementation. Activities will pinpoint policy issues and opportunities.</p>	improved farmer access to capital finance and risk management instruments: improved access to regional and global markets
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IFAD Operations

Indonesia	2012 - 2017	Coastal Community Development Project	\$24.2 million	<p>The project will be implemented in eastern Indonesia in areas with a high incidence of poverty. The focus will be on a limited number of districts with diverse marine environments and socio-cultural contexts.</p> <p>Community empowerment continues to be a key strategy underlying government development programmes and shapes the mode of implementation, and provides the basis for project investment activities to work and interact.</p> <p>The market-focused strategy and associated interventions will enable fisher and marine households to increase sustainable net returns on fish and other marine products. The community's creation of enterprise groups will be the key intervention to open up economic opportunities. The enterprise groups would be "the engine" in the high-potential value chains supported by the project.</p>	agriculture productivity enhancements
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IFAD Operations

Indonesia	2011 - 2019	Smallholder Livelihood Development Project in Eastern Indonesia	\$49.1 million	<p>The overall objective of the project is to reduce poverty and improve food security and incomes in poor rural communities located in the two provinces of Maluku and North Maluku. Most of the targeted populations are engaged in tree and food crop production. The project builds on the positive experiences of the Post-Crisis Programme for Participatory Integrated Development in Rainfed Areas.</p> <p>Project interventions focus on:</p> <ol style="list-style-type: none"> 1)Community empowerment 2)Boosting productivity by introducing integrated farming systems 3)Enhancing natural resource management 4)Value chain development and marketing 5)Investing in productive rural infrastructure 6)Strengthening local institutions. 	<p>agriculture productivity enhancements; human capacity development; increased capacity of agriculture systems to adapt to climate change; supply chains; infrastructure development</p>
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IFAD Operations

Indonesia	2009 - 2016	National Programme for Community Empowerment in Rural Areas	\$68.1 million	<p>The IFAD-supported project assists agricultural development in targeted areas of rural Papua and West Papua, two provinces with largely indigenous and ethnic populations. In particular, it provides funds for productive proposals developed by communities through a participatory planning process. Local communities and community-based organizations, including tribal groups, also participate in implementing the project and monitoring progress at village level.</p> <p>Activities carried out under the programme include improvements in rural and market infrastructure, water supply and irrigation systems and in access to basic services in rural areas. The programme enables local communities to use grants to invest in public goods that improve rural livelihoods through crop and livestock development, market linkages and value chain development, and also by stimulating local economies and generating employment opportunities.</p>	<p>infrastructure development; improved farmer access to capital finance and risk management instruments; supply chains</p>
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IFAD Operations

Indonesia	2008 - 2014	Rural Empowerment and Agricultural Development Programme in Central Sulawesi	\$28.3 million	<p>Central Sulawesi Province is the fifth poorest province in Indonesia. Poverty is widespread in the highland and coastal regions. Competition over natural resources has led to environmental degradation and the marginalization of indigenous groups. The goal of the programme is to raise incomes and provide livelihoods for poor rural people living in some of the most disadvantaged communities in the province. It introduces sustainable agricultural technologies and practices and provides for a revolving fund through which poor farmers can undertake a range of activities to generate income and create assets.</p> <p>The programme will work to:</p> <ol style="list-style-type: none"> 1) Help communities plan activities and manage their own development needs 2) Improve agricultural production and develop rural enterprises and access to markets 3) Develop infrastructure such as roads, water supply and irrigation facilities. 	human capacity development; agriculture productivity enhancements; improved access to regional and global markets; infrastructure development
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IFAD Operations

Mexico	2012 - 2018	Rural Development Project in the Mixteca Region and the Mazahua Zone	\$47.5 million	<p>The objective of the project is to increase the income and employment of rural poor and indigenous households in the Mixteca region, located within Guerrero, Oaxaca and Puebla States, and the Mazahua zone in the State of Mexico. It represents an investment in developing and consolidating pro-poor, small-producer value chains by strengthening the social fabric of rural and indigenous communities.</p> <p>The project has four main thrusts:</p> <ol style="list-style-type: none"> 1) Promoting the formation and development of grass-roots economic organizations 2) Developing social and entrepreneurial management capacities among a new cadre of local leaders, including rural and indigenous women and young people 3) Supporting sustainable agricultural production through the rehabilitation and sound management of natural resources, particularly access to water 4) Developing entrepreneurial linkages and rural microenterprises while facilitating wider access to markets. <p>The project area comprises 50 priority municipalities that are home to most of the Mixteca indigenous population and two municipalities where about 50,000 Mazahua indigenous people live. The target group consists mainly of subsistence agricultural producers who cultivate communal lands, unorganized small livestock producers, artisans with weak linkages to markets, and rural and indigenous women and youth.</p>	human capacity development; increase capacity of agriculture systems to adapt to climate change; improved access to regional and global markets
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IFAD Operations

Mexico	2011 - 2016	Community-based Forestry Development Project in Southern States (Campeche, Chiapas and Oaxaca)	\$18.5 million	<p>The Community-based Forestry Development Project's fully aligned with the country's forestry policy will improve the livelihoods and incomes of 18,000 extremely poor forest communities in Campeche, Chiapas and Oaxaca located in the southern states of Mexico. It will be implemented by Mexico's National Forestry Commission (CONAFOR).</p> <p>Working together with the project beneficiaries, the project will strengthen the capacity of the communities to better manage their natural resources, enhance conservation practices such as promoting increase of vegetation cover and put in place mechanisms to cope with impact of climate change.</p> <p>The project will:</p> <ul style="list-style-type: none"> provide training on management and sustainable use of forests and plants strengthen community skills in organisation and planning help create profitable and sustainable timber and non-timber activities for indigenous peoples communities, women and other vulnerable groups who have limited access to land contribute to strengthen CONAFOR's capacities to reach poor families 	human capacity development; increased capacity of agriculture systems to adapt to climate change
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IFAD Operations

Mexico		Sustainable Development Project for Rural and Indigenous Communities of the Arid Northwest		<p>The project will work with rural communities and indigenous poor and marginalized of the four states selected to:</p> <ol style="list-style-type: none"> 1)improve natural resource conservation ensure greater community control over its assets, 2)including land, agro-biodiversity and the natural environment 3)increase the productive capacity of the land through the use of improved production technologies and conservation 4)improve income levels and employment by promoting rural micro and nature-based tourism and charging for environmental services 5)increase community participation in local development processes, with special attention to the participation of women and younger <p>This project will be conducted in close coordination with the Mexican government's efforts territorial development of micro-regions, and specifically with the National Micro Program.</p>	human capacity development; increase capaciti of agriculture systems to adapt to climate change
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IFAD Operations

Peru	2005 - 2013	Market Strengthening and Livelihood Diversification in the Southern Highlands Project (Sierra Sur)	\$16.0 million	<p>This project works with poor Quechua and Aymara families in the southern highlands of Peru to help improve the quality of their products, preserve their traditional knowledge and improve natural resource management to diversify their sources of income. One of the project's most innovative features is the direct transfer of funds to communities, enabling small-scale farmers and micro-entrepreneurs to contract for technical assistance that will make their products competitive in national, regional and international markets. The project provides resources specifically for women farmers. This assistance helps them obtain property rights to land and legal recognition for their small handcraft businesses, and enables them to manage their own savings.</p>	improved access to regional and global markets
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IFAD Operations

Peru	2013 - 2018	Strengthening Local Development in the Highlands and High Rainforest Areas Project	\$36.5 million	<p>The objective of this project is to increase the effectiveness, efficiency and relevance of public investments from central, regional and local governments. In this way, it aims to improve the well-being of the rural population and increase the value of their natural, physical, human, social and financial assets.</p> <p>The project involves three main components:</p> <ol style="list-style-type: none"> 1)Valuing the assets of small-scale farmers by building their capacity for natural resource management and funding territorial management plans 2)Providing small-scale producers with access to financial and non-financial services, including technical assistance, market linkages and leadership skills 3)Strengthening capacity for local development through a territorial approach. <p>The project area includes the central and northern sierra and a small portion of the high rainforest region in the department of San Martín. The target population is composed mainly of subsistence smallholders and small-scale producers with limited physical, financial and human capital and restricted access to markets.</p>	human capacity development; improved farmer access to capital finance and risk management instruments;
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IFAD Operations

China	2013 - 2018	Yunnan Agricultural and Rural Improvement Project	\$94 million	<p>The project area comprises 45 townships in nine counties of Yunnan Province. Components of the project include:</p> <p>Components of the project include:</p> <p>Community infrastructure improvements, such as the rehabilitation and development of village roads and water supply systems</p> <ul style="list-style-type: none"> -Productivity improvements in the form of enhanced crop, livestock and fishery production, expanded agricultural and livestock extension services, and other support -Improvements in the value chain and market access, for example by upgrading roads and identifying, producing and marketing selected cash crops and livestock products. -involve market studies and the formation of farmers' and producers' groups and cooperatives – as well as local training and capacity building, and development of market information services. 	<p>Agriculture productivity enhancements; Human capacity development; improved access to regional and global markets; supply chains; Infrastructure Development</p>
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Instituto del Mar del Peru (IMARPE)

Project	Project Description	Subject Category
Aquaculture	<p>The Instituto del Mar del Peru has among its main objectives work conducting scientific and technological research, in an attempt to manage to have a decisive participation in the national aquaculture development, considering the resources available to it, its strategic location (of your Headquarters and regional bodies) and its close links with the productive sector.</p> <p>In recent years IMARPE has been developing studies with captive marine species, such as molluscs (scallops and clams), fish (sole) and auxiliary crops (microalgae, rotifers, brine shrimp and copepods). Similarly, ecotoxicological tests have been carried using stages of certain species (very very, mackerel, sea urchin and bivalve molluscs) to measure the impact of pollution marina.</p> <p>Productive technological development to be undertaken by IMARPE in aquaculture in the coming years, should respond to a management model mainly involving aquaculture business consultancy, in particular those relevant to the provision of services that help these achieve an increase its production.</p> <p>Within this research unit conducted the following research areas:</p> <p>Aquatic species culture Aquatic Biotechnology Aquatic genetic Aquatic Pathobiology</p>	innovative agriculture research

Instituto del Mar del Peru (IMARPE)

<p>Resources and Fisheries</p>	<p>IMARPE conducts research on the biology and population dynamics of living resources and economic importance Peruvian Sea and Inland Waters, oriented primarily to the evaluation of marine species, as well as the exploration of other species considered as potential resources, for development and fisheries management.</p> <p>Their main objective is to understand the biological features of the fisheries resources in order to advise the Ministry of Fisheries in the implementation of measures to prevent over-exploitation of our marine resources and continental. Defined as hydro-biological resources to anything that could be used and that lives in aquatic environments, and according to their operation may be o Potential exploitation.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
<p>Directorate of Fisheries Research and Technological Development (DIPDT)</p>	<p>The DIPDT conduct technology to diversify the methods of extraction and increase the efficiency of fishing gear, aquatic resource assessment by acoustic methods, and environmental study using satellite imagery.</p> <p>DEPENDENT AREAS</p> <p>Extraction Technology Unit (UTE) Detection Technologies Unit (UTD) Unit Remote Sensing and Geographic Information Systems (UPRSIG)</p> <p>The products generated through this address are: Cruise Pelagic Resources Assessment, Demersal and Invertebrates Imagery for the marine environment Antarctic Cruises (BIC Humboldt) Publications</p>	<p>innovative agriculture research; technology dissemination; agriculture productivity enhancements</p>

Instituto del Mar del Peru (IMARPE)

Environmental Quality	<p>Conduct research programs related to monitoring of the aquatic environment to determine the degree of deterioration or alteration of the quality that present Peruvian coastal marine areas.</p> <p>Conduct research and apply methodologies for environmental management, allowing the concerted use of the coast by different production areas, especially those that can promote the development of aquaculture.</p> <p>Make ecotoxicological studies in the marine and inland waters, aimed at contributing to the knowledge of the effects of toxic chemicals and aquatic organisms and their populations, providing information to establish criteria for water environment quality.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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Kraft_Mondeleez

Country	Project	Project Description	Subject Category
	<p>Kraft Food’s Commitment to WFP Project Laser Beam Partnership</p>	<p>By teaching sustainable farming skills, creating microenterprises and providing nutrition education, Kraft Foods is empowering women and thereby helping to eradicate child malnutrition in some of the neediest areas of Indonesia and Bangladesh.</p> <p>Announced today at a World Economic Forum meeting in Jakarta, Kraft Foods’ \$3.8 million program in cooperation with Helen Keller International will help families in the East Nusa Tenggara (NTT) region of Indonesia, where 58 percent of children under age 5 have stunted growth due to malnutrition, and in the Satkhira district of Bangladesh, where about half of the children under age 5 are malnourished.</p> <p>This program is the company’s first major investment as part of Project Laser Beam, a five-year, \$50 million public-private partnership led by the U.N. World Food Programme that seeks to eradicate child malnutrition. Kraft Foods Foundation is a founding partner and one of the largest sponsors of Project Laser Beam, having committed \$10 million to the partnership. Specifically, Kraft Foods is funding 180 “centers of excellence” for farming in Indonesia and Bangladesh over the next four years. From these centers, thousands of women across NTT and Satkhira will learn sustainable farming practices and receive “start-your-own-farm” supplies (fertilizers, tools). The techniques to be taught will focus on low-cost, environmentally friendly approaches, such as the preparation and use of compost, non-chemical pest control, irrigation, crop rotation, mulching and live fencing.</p> <p>The outcome of these “centers of excellence” will be the creation of thousands of homestead farms, which will enable</p>	<p>agriculture productivity enhancements ; human capacity development; increased capacity of agriculture systems to adapt to climate change</p>

Kraft_Mondelez

		<p>local women to grow what they need to feed their families a nutritionally balanced diet. The program will also provide nutrition education and small business training to help these women sell their surplus crops to create greater economic opportunity for their families.</p>	
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Kraft_Mondelez

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Monsanto

Country	Project	Time Frame	Project Description	Subject Category
United States	Producing Two Crops on Each Corn Field		<p>Corn stover is the stalks, leaves and cobs left after the corn kernels are harvested in field corn. Traditionally, stover has been left in the field to reduce soil erosion and help increase soil organic matter. However, higher planting densities and increased yields have produced stover in amounts that exceed levels needed to maintain soil health in the most productive parts of the U.S. Corn Belt. Farmers have responded to this problem by increasing tillage to speed stover decay and reduce crop residue in their seedbeds. Recently, scientists from Monsanto and Archer Daniels Midland (ADM), worked with the University of Nebraska, Lincoln (UNL) and Iowa State University (ISU), government researchers and equipment manufacturers to take a new look at stover and identify how it can play an important new role in animal feeds. Using a pre-treatment, a method similar to the one that is used to make tortillas, enables the sugars in stover to be better digested by beef cattle and dairy cows. This allows stover to displace whole corn in livestock</p>	<p>agricultural productivity enhancements; increased capacity of agriculture systems to adapt to climate change</p>

Monsanto

		<p>feeding programs. Using corn stover instead of more expensive grain improves the income potential for both the grain and livestock farmer. The cattlemen have a new alternative as they develop their feeding program—and the grain farmer has two crops produced on each corn acre.</p> <p>Society also benefits. The U.S. government estimates that about 100 million dry tons of stover can be sustainably harvested each year. About 10 to 20 percent of this is enough to provide feed equal to one to two billion bushels of corn for U.S. beef and dairy herds. This is equivalent to a 10 percent increase in the U.S. corn supply and could also free up 20 million acres (8 million hectares) of hay ground for other uses. By developing new uses for stover, the environment is protected, and the strain on each corn harvest is lessened because the corn that was once destined to be animal feed can now be used for other purposes.</p>	
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Field to Market: The Keystone Alliance for Sustainable Agriculture	2010-present	<p>Monsanto is proud to be a founding member of Field to Market: The Keystone Alliance for Sustainable Agriculture. Field to Market has risen to the challenge of comprehensively measuring the resource intensity of major row crops in the United States. Key performance indicators measured by Field to Market include land use, climate impact, energy use, irrigated water use and soil loss. Employing a three year rolling average of Field to Market data and analytical methods for 2010, farmers in the U.S. are tracking ahead of pace to achieve the goal of one-third less key resources per unit of crop output. U.S. cotton farmers have reduced average resource intensity by 23 percent. Soybean and corn farmers are 19 percent and 14 percent more resource efficient versus the year 2000 baseline observations. Monsanto is supporting efforts to document similar data and analytical methods in additional countries. Over the past year, multi-stakeholder efforts in Canada and Spain have issued reports that largely align to</p>	innovative agriculture research; agriculture productivity enhancements
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			<p>the Field to Market effort in the United States. Moreover, Monsanto is consistently voicing its support for more robust efforts to collect data on a global basis that would allow for more consistent monitoring of resource-use intensity levels in agricultural production systems.</p>	
United States	Monsanto Mississippi River Watershed Project		<p>In an effort to address the volume of nutrient and sediment flowing into the Mississippi River System and the Gulf of Mexico from adjacent farmlands, Monsanto partnered with The Nature Conservancy, the Iowa Soybean Association, Delta Wildlife and National Audubon Society in a three-year pilot project. The project brought new tools and disciplines to help farmers along the Mississippi River efficiently produce higher-yielding crops for food, fiber and fuel in ways that further preserve water quality and support diverse and abundant wildlife populations. The Nature Conservancy conducted a conservation project in four watersheds in the Upper Mississippi River basin. Monsanto</p>	<p>innovative agriculture research; agriculture productivity enhancements; human capacity development; increased capacity of agriculture systems to adapt to climate change; funding for agricultural research</p>

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			<p>worked with local partners—including farmers in those watersheds— to implement and study conservation techniques that best lower nutrient and sediment concentrations by reducing runoff from agricultural landscapes. Meanwhile, the Iowa Soybean Association researched and paired micro-watersheds in the Boone and Raccoon Rivers. The association coordinated conservation outreach in those watersheds, including monitoring, measurement and evaluation of on-farm resources and environmental outcomes. Delta Wildlife installed Best Management Practices (BMPs) on approximately 1,000 sites on working farms in part of the Lower Mississippi Valley, affecting 51,572 acres (20,870 hectares). Designed to reduce off-site movement of nutrients and sediments, the BMPs stop an estimated 9,203 tons of sediment per year, 10,080 pounds of Phosphorus per year, and 20,160 pounds of Nitrogen per year. These practices provide additional environmental benefits, including improved fish and wildlife habitat and water conservation. Audubon’s work focused on raising awareness of</p>	
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		<p>how people can be good stewards of nature in their own backyards, promoting individual actions to enhance water quality and habitat for birds and other wildlife. In support of the projects of all of the partners, Monsanto committed more than US\$5 million. It also worked with all four partners to share data generated from the projects with its farmer customers and to encourage on-farm adoption of management practices that contribute to water quality. Data collected from all projects has been reported annually and is expected to generate novel approaches which can be implemented broadly across rural landscapes. The findings from all projects have been shared with farmers to help them adapt and refine practices that preserve water quality and improve wildlife habitat.</p>	
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Monsanto

United States	Conservation Practices in Hawaii	<p>Monsanto has technology and manufacturing operations on three islands in the state of Hawaii. Monsanto's seed passes through Hawaii multiple times in its breeding, biotechnology trait development, trait integration, pre-foundation and foundation seed production units during development to take advantage of the favorable climate to grow multiple generations of corn and soybeans each year. At all locations, environmental stewardship is a key component of Monsanto's freedom to operate. Water and land are limited and precious commodities in Hawaii, and the Monsanto Hawaii team has taken the lead to preserve them.</p> <p>On all islands and in all operations, crops are produced using drip irrigation. Not only does this irrigation method preserve water by delivering it directly into the plant root zone, it reduces the amount of fertilizer needed to produce the crop, because fertilizer is delivered directly to the root zone in small increments, as opposed to one, larger application made at the beginning of the growing season. As a result, the</p>	innovative agriculture research; agriculture productivity enhancements; increased capacity of agriculture systems to adapt to climate change
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		<p>nutrients can be utilized more completely by the crop. Corn, for example, can be produced using up to 60% less nitrogen with this method.</p> <p>The Biotechnology Trait Conversion Center on Maui utilizes R1 water from the municipal waste system to produce corn seed. R1 water is defined by the County of Maui as “tertiary treated recycled water that can be used without restrictions.”</p> <p>Through collaboration with the County of Maui, Monsanto purchases and uses more than 185,000 gallons of R1 water per day. This collaboration benefits both Monsanto, by having a dedicated, secure water source, and the community from not having to further process the water prior to environmental release.</p>	
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Monsanto

	Sustainable Yield Initiative	2000-2030	<p>We're working to double the yields of corn, soybeans, cotton and spring-planted canola between 2000 and 2030. The world population continues to grow and at the same time there is a limited amount of land that's suitable for agricultural production. To meet the needs of the booming population we have to be more productive with our crops. We say we're working to double yields in our core crops by 2030 using breeding, biotechnology and improved farm-management practices but what does that really mean? When we talk about breeding and biotechnology we're really talking about improving seeds. We're working to bring better seeds to market, seeds that produce strong, healthy plants that are resistant to disease and can stand up to tough environmental conditions. In order to produce more farmers need tools to help them get the most from their land. We're working to get farmers the technology and know how they need so they can give their crops the best chance to reach their highest potential. Farm management practices range from everything from proper tillage (when and how a farmer ploughs his field), to planting depth (how deep to plant the seed),</p>	<p>innovative agriculture research; agriculture productivity enhancements; human capacity development; increased capacity of agriculture systems to adapt to climate change; funding for agriculture research; supply chains</p>
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			and planting population (how many plants in a row to plant and how far apart to plant them). All of these factors play a role in producing more food.	
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National Farmers Federation - Australia

Project	Project Description	Subject Category
<p>Farm business and productivity - Research and Development</p>	<p>Innovation is fundamental to Australian agricultural - helping to improving the profitability and competitiveness of the farming sector, as well as underpinning its ongoing sustainability and maintaining the quality of Australia's natural resources.</p> <p>Australia has witnessed a decline in the research and development (R&D) effort to underpin its agricultural industries over recent years, at a time when the challenges of operating in international markets and environmental constraints have become ever greater,</p> <p>The NFF has called on the Australian Government to reverse the decline in agricultural R&D, and to develop a comprehensive strategy which takes a whole of Government approach to supporting innovation in the sector.</p> <p>In July 2012, the NFF welcome the Australian Government's announcement (in response to the Productivity Commission review of the Rural Research and Development Corporations and the Rural R&D Council's National Strategic Rural Research and Development Investment Plan), to improve Australia's rural R&D and extension efforts.</p> <p>The NFF believes the Government's plan to increase transparency, coordination and value for money within the existing R&D model is positive, yet more needs to be done to ensure increased investment in Australian agriculture R&D. Media Release: http://www.nff.org.au/read/2963/more-investment-needed-in-rural-drive.html Submissions: http://www.nff.org.au/submissions-search.html?subcategoryid=3414</p>	<p>innovative agriculture research; funding for agriculture research</p>

National Farmers Federation - Australia

<p>Drought Reform</p>	<p>Following a decade of prolonged drought, Australia was declared officially drought free in April 2012. But, as all farmers know, the next drought is a case of when, not if, and thus drought preparedness is a key policy priority area for the NFF.</p> <p>The NFF has long recognised the need for drought policy reform to help farmers combat future drought periods: shifting the focus from drought relief to drought preparedness and management.</p> <p>The NFF has been the driving force behind development of a fairer, more equitable drought policy to support farmers in drought conditions, and we continue to work with the Australian Government to develop this policy.</p> <p>We believe it is imperative that drought policy finds a balance between allowing farmers to build their own risk management and preparedness, while also ensuring that appropriate assistance remains available in the event that an exceptional drought disrupts their preparations. Policy Submissions: http://www.nff.org.au/submissions-search.html?subcategoryid=3415</p>	<p>increased capacity of agriculture systems to adapt to climate change/disaster</p>
<p>Reducing Red Tape</p>	<p>The NFF is dedicated to removing the unnecessary burden and costs of over-regulation on farmers. Duplicate and excessive bureaucratic red and green tape should be eliminated wherever possible to maximise the efficiency of the Australian farm sector.</p> <p>The NFF submission to the Productivity Commission inquiry into regulatory burdens on primary industry businesses in 2006 noted that complex and contradictory legislation was a major issue for farm business, with significant financial and resource costs imposed on farmers in compliance.</p> <p>Analysis undertaken by Holmes Sackett & Associates (commissioned by the NFF) to quantify the cost of bureaucratic red tape on farm businesses was released in August 2007, finding that up to 15 percent of net farm profit was being eaten away each year and costs had risen 80 percent over the five year period from 2003-2007.</p> <p>In 2012, the NFF welcomed the Australian Government and Opposition's stated commitment to reduce the amount of environmental regulation for businesses, including farm businesses.</p>	<p>agriculture productivity enhancements ; improved access to regional and global markets</p>

National Farmers Federation - Australia

	<p>More information: http://www.nff.org.au/read/2737/better-late-than-never-cutting-green.html</p>	
<p>Rural debt and access to finance</p>	<p>Ensuring access to finance to support small businesses, including farm businesses, is of vital importance to the agricultural sector and rural communities, ensuring these businesses can continue to grow their contribution to employment and the economy.</p> <p>At the same time, rural debt levels have increased significantly in the last decade – rising by over 85 percent since 2002-03. The rising debt is due in part to prolonged drought followed by flooding rains, and also investments in on-farm capital works as farmers look to improve productivity.</p> <p>While these investments in capital works should hold farmers in good stead into the future, total farm debt levels at above \$60 billion place the agricultural sector at considerable exposure to increasing credit costs. Should the banking sector withdraw its support of the agricultural sector and aggressively foreclose on rural debt, there is potential for regional land prices to fall.</p> <p>Tightening monetary policies are also having an increasing impact on Australian farmers and posing challenges for the agricultural sector. The NFF believes there is a need to build competition and transparency in the banking sector, improve the understanding by the Reserve Bank of Australia of regional economic conditions, revisit tax based investment mechanisms for regional Australia, and build the education and awareness of risk management tools for farmers.</p> <p>As a first step, the NFF has introduced the Agribusiness Loan</p>	<p>improved farmer access to capital finance and risk management instruments; Human capacity development; improved access to regional and global markets</p>

National Farmers Federation - Australia

	<p>Monitor(http://www.nff.org.au/publications.html#cat_2119): a free and publicly available monthly tool that tracks the interest rate movements of financial lenders' agribusiness loans.</p>	
<p>Transport Infrastructure</p>	<p>Rural and regional Australians rely on access to efficient and effective transport infrastructure to underpin the competitiveness of Australian agricultural produce in international markets and to ensure Australian consumers have access to fresh, high quality, local produce.</p> <p>Recent reports have highlighted the underinvestment in transport infrastructure, particularly in rural and regional Australia. The RIRDC-commissioned report 'Transport infrastructure for Australia's agricultural needs,' released in November 2011, found that planning for future agricultural infrastructure needs is essential. The report went on to highlight deficiencies in terms of funding, maintenance programs, planning coordination and data collection.</p> <p>This report lends weight to the views expressed by the Australian Rural Roads Group in their November 2010 report 'Going Nowhere' that there has been under investment in rural roads, and that a dramatic rethink is required on transport infrastructure to service agricultural industries.</p> <p>The NFF has called for a sweeping strategic overhaul of Australia's freight transport infrastructure. While overtures have been made towards this vision by Government, resources need to be available to ensure that the strategies and policy which exist on paper are turned into on-the-ground infrastructure. Recent Submissions:http://www.nff.org.au/submissions-search.html?subcategoryid=3420</p>	<p>infrastructure development; agriculture productivity enhancements ; innovative agriculture research</p>

National Farmers Federation - Australia

<p>Farm chemicals</p>	<p>The responsible use, monitoring and storage of farm chemicals is of paramount importance to Australia's farmers, and must be consistently applied across state borders in line with community expectations about safety and sound environmental management.</p> <p>The NFF represents one of the largest groups of legitimate chemical users in Australia. The NFF proposes and supports policies, programs and alliances that promote the safe and secure storage, handling, transport and sale of agricultural and veterinary chemicals from the place of manufacture through to the point of sale. Policy Submissions: http://www.nff.org.au/submissions-search.html?subcategoryid=3421</p>	<p>increased capacity of agriculture systems to adapt to climate change</p>
<p>Biotechnology and Genetic Modification</p>	<p>New technologies and the improved use of available technologies - such a biotechnology and genetically modified (GM) crops - have assisted Australian farmers achieve efficiency and productivity gains, and have helped ensure Australian agriculture can remain competitive on international markets.</p> <p>The NFF recognises the potential of biotechnology (including gene technology) as a valuable tool within agricultural production systems. The responsible and strategic application of biotechnology within Australian agriculture can result in significant benefits for Australian farmers, the environment, consumers and the Australian economy as a whole. Australian cotton growers, for example, have reduced their use of pesticides by over 90 percent over the last 10 years due to biotechnology and best management pest practices.</p> <p>The NFF believes that Australian farmers should have the opportunity to adopt production methods best suited to their business needs - be that GM, conventional, organic or any combination of these methods - and that the production decisions of one farmer should not unreasonably impinge on the ability of another farmer to meet the requirements and expectations of their chosen market.</p> <p>We support research and development into biotechnology, and believe that consumers, like farmers, should have the right to choose what sort of products they use and consume.</p> <p>To ensure that all Australians have access to credible, balanced and science-based</p>	<p>innovative agriculture research; agriculture productivity enhancements ; technology dissemination</p>

National Farmers Federation - Australia

	<p>information in order to make informed decisions on biotechnology and gene technology, the NFF is a supporting member of the Agricultural Biotechnology Council of Australia (formerly AgriFood Awareness Australia). NFF's recent submission: http://www.nff.org.au/submissions-search.html?subcategoryid=3424</p>	
<p>Fuel and Energy</p>	<p>Fuel and energy are among the largest costs for Australian farmers, and the spike in fuel prices over the past decade has had a significant impact on the agricultural sector.</p> <p>According to research by ABARES, the direct cost of fuel and lubricants is around eight to nine percent of all farm cash costs, with the majority of that cost being diesel. When this is broadened to indirect costs, energy and energy-dependent farm income costs (as a proportion of total farm input costs) increase to almost 50 percent for some major agricultural sectors. And, in just one year, the fuel costs for Australian farmers jumped 12 percent.</p> <p>These costs, and their impact on farm competitiveness, show the importance of affordable fuel and energy to the long-term competitiveness of Australia's agricultural sector – and are the rationale behind the NFF's continued support of the Fuel Tax Credit Scheme.</p> <p>The NFF believes that extensive research and development is needed to enable farmers to insulate themselves from the escalating cost of diesel, petrol and energy. This may include new technologies that help improve the efficiency of fuel use, alternate fuel sources, alternate fertilisers (many fertilisers are fuel based) and biotechnology research for genetically modified (GM) crops that are less reliant on fertiliser use.</p>	<p>agriculture productivity enhancements ; innovative agriculture research</p>

National Farmers Federation - Australia

Foreign Investment	<p>Foreign investment has historically been an integral part of Australian agriculture. Global companies have been attracted by Australia's reputation for high quality and safe production, our proximity to key Asian economies, counter-seasonal production for the northern hemisphere, relatively low levels of sovereign risk and a productivity record that is the envy of agricultural producers the world over.</p> <p>Such investment has been overwhelmingly positive for Australian farmers and regional communities. It has delivered significant amounts of capital into our production systems at a time when finance from the banks has been more difficult to access. This capital has improved our efficiencies and ensured that our farmers can continue to compete in a highly distorted global marketplace for agricultural commodities.</p> <p>Yet the global food crisis and concerns over future food availability have prompted concerns over a new wave of foreign investment that is starting to emerge in Australian agriculture.</p> <p>Rather than being underpinned by genuine commercial forces where profits are the driver, food security has emerged as a new factor for investment. With state-owned enterprises entering the market, it is becoming blurred as to whether all of this investment is still interested in the profitability of the venture, or rather in ensuring that a consistent stream of food can be delivered to the nation's people.</p> <p>This raises the question of transparency in the supply chain - potentially jeopardising competition at the farm gate and depressing the local market. At an extreme level, this could also lead to Australia's own food security goals being compromised.</p> <p>The Government must ensure that effective regulations are in place to avoid these outcomes, and to do so, greater transparency is needed around the issue of foreign investment.</p> <p>As such, the NFF Members' Council passed a resolution in April 2012 calling for a national land register that it makes it compulsory for all foreign persons and organisations that acquire or transfer an interest in agricultural land and water to report the sale within a prescribed time period.</p>	improved farmer access to capital finance and risk management instruments; improved access to regional and global markets; supply chains
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National Farmers Federation - Australia

	<p>In June 2012, the Federal Government responded, announcing that a working group would be established to consult on the development of a foreign ownership register.</p> <p>This announcement is a step in the right direction for farmers – and a win for the NFF and our members – and we will continue to work with the Government to ensure that once the working group has consulted, a register is indeed developed. Submission: http://www.nff.org.au/submissions-search.html?subcategoryid=3408 Media Release: http://www.nff.org.au/read/2875/nff-welcomes-foreign-investment-working-group.html</p>	
<p>Agricultural Education, Skills, Training and Labour Working Group</p>	<p>The NFF is taking an active role in bringing together the education, skills, training and labour sectors to work towards a collaborative solution to the education and labour shortage issues facing Australian agriculture.</p> <p>In February 2012, the NFF convened an Industry Roundtable, bringing together 50 industry, government and education representatives as the first step towards finding practical solutions. From this Industry Roundtable, an Education, Skills, Training and Labour Working Group has been established involving key industry leaders to drive solutions.</p> <p>The NFF is playing a facilitation role, as we appreciate that the issues are larger than any one group alone. Real outcomes in this area will rely on collaboration and coordination of industry, government and the education sector, hence the Working Group is taking an active leadership role on behalf of Australian agriculture.</p>	<p>human capacity development</p>

National Farmers Federation - Australia

Primary Industries Education Foundation (PIEF)	The NFF believes education is a vital component of ensuring the longevity of the agricultural sector - from primary school children right through to tertiary students - in order to encourage greater interest in agricultural careers, and to help build understanding of where food and fibre comes from. This is why the NFF is a founding member of the Primary Industries Education Foundation (PIEF), and was one of the driving forces behind its creation.	human capacity development
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Nestle

Country	Project	Time Frame	Project Description	Subject Category
China	Nestlé creates a market for Chinese milk farmers	Present	<p>Nestlé’s Shuangcheng milk production facility, established in 1987 and located in Heilongjiang Province in Northeast China, is the largest of its kind in Asia and ranks fourth in the world in terms of annual dairy production in the Nestlé Group. Nestlé’s commitment to high-quality dairy production always start at the source and in the Shuangcheng milk district, we build direct relationships with each of the rural milk farmers who supply us with farm-fresh products.</p> <p>Over the past 20 years, we have created a unique milk collection model called “factory and farmers” that provides farmers with technical assistance whilst effectively eliminating the “middleman” to ensure traceability and accountability across our supply chain. Dairy farmers are provided with continuous training, skills development and access to new technology – from cow selection, to quality feed, to access to biogas digesters that can help farmers reduce effluents that contaminate local water resources. Nestlé conducts more than 300 free training sessions for Shuangcheng’s milk farmers every year where agricultural extension experts help educate farmers about best practices and new tools.</p>	agriculture productivity enhancements ; human capacity development; improved access to regional and global markets; supply chains
Vietnam	Coffee growing: sustainable farming, Vietnam		<p>The global coffee market is subject to regular price fluctuations, particularly affecting small farmers. Nestlé is committed to paying fair prices for all raw materials and wherever possible, we operate a direct purchase scheme that ensures a reasonable return to the farmer. We have a long-term commitment to developing sustainable agriculture and we work through industry-wide initiatives like the Common Code for the Coffee Community (‘4C’) to do so. Nestlé agronomists train and advise farmers in modern methods, in order to lower their production costs, improve</p>	agriculture productivity enhancements ; human capacity development

Nestle

			earnings and increase skills. This also contributes to higher standards of environmental practice, and helps Nestlé to ensure a long-term, sustainable supply of high-quality coffee.	
Malaysia	Contract chilli and red rice farming	2007-present	Nestlé's red rice cultivation was officially launched in October 2007. In 2008, Nestlé Malaysia signed agreements with the Malaysian Agricultural Research and Development Institute (MARDI) for a formal research and development (R&D) collaboration for agriculture, and a Memorandum of Agreement (MoA) for the management and implementation of the Ministry of Science Technology and Innovation (MOSTI) Red Rice Technofund. Full contract farming is in place involving more than 500 farmers, and covering some 350ha of farmland in Sarawak's 1st Division for Red Rice. Nestlé's chilli contract farming scheme was established in Kelantan in 1995. Field demonstration and trainings are organised to focus on increasing productivity, reduce farm costs, minimise environmental impact and enhance farmer work safety. A chilli puree factory has been set up to process fresh chilli in times of overproduction, and thereafter to supply to Nestlé. Nestlé will continue to work closely with the Farmers Association and the farmers to improve their yield and quality of crops to meet global standards.	improved access to regional and global markets

Nestle

China	Coffee agricultural assistance programme	1995-present	<p>Nestlé China had established an Agriculture Technical Assistance Service in Yunnan Province to encourage and support coffee cultivation, and created an Experimental and Demonstration (E&D) Farm in Jinghong. Almost 20 years on, Yunnan – traditionally a tea-growing area – has become a quality Arabica coffee-growing region.</p> <p>Nestlé purchases directly from local farmers, 80% of whom are smallholders. Nestlé also supplies seeds of varieties suited to local soil conditions and climate, and advises farmers on techniques to improve both quality and yield. Nestlé’s coffee procurement supports up to 19, 000 people involved in coffee farming, and since 1995, about 7,384 farmers have received training on planting, quality control and processing techniques. In 2012, eleven workshops have been organized for the Nestlé suppliers to introduce 4C and 4C sustainability standards.</p> <p>Traditional coffee-processing methods require a lot of water – approximately 150 litres per kilogramme of green coffee. New equipment introduced in 2003 at the Nestlé E&D Farm has decreased water consumption by more than 80% and also serves to demonstrate best practice to other coffee farmers in the region.</p>	<p>agriculture productivity enhancements ; human capacity development; improved access to regional and global markets; technology dissemination</p>
Indonesia	Dairy Developments and Biogas Projects	Present	<p>In the East Java milk district, around 32 000 dairy farmers supply milk to Nestlé’s Kejayan factory through 31 dairy cooperatives. With support from our Milk Procurement and Dairy Development Department, they have been able to improve their dairy farming practices to increase productivity and command a premium for higher-quality milk. The initial focus for productivity improvement was on improved fodder, feed and animal health. The partnership has also benefited other villagers who obtained employment in the production process ranging from cooperative managers to grass</p>	<p>agriculture productivity enhancement; improved access to regional and global markets; increased capacity of agriculture</p>

Nestle

		<p>collectors.</p> <p>Where the Nestlé/HIVOS project is not active, another smaller project has been set up with farmers supplying the Kejayan factory, to reduce their impact on the environment – and particularly on water resources – and to save energy at a household level, Nestlé has set up a fund to provide dairy cooperatives with 50 small biogas units and 10 larger units. The renewable energy (methane) they create is made available to dairy farmers.</p> <p>An estimated 8300 people will initially benefit from these two projects but our aim is to ultimately extend this project to all dairy farmers in the region.</p> <p>In addition, Nestlé is currently operating two biogas projects. A three-year partnership with the Humanist Institute for Development Cooperation (HIVOS) is helping dairy cooperatives gain access to biogas units to convert methane from their cattle’s manure into useable energy. We facilitate access to financial assistance, while HIVOS constructs the biogas units and provides training, and the aim is to set up 8000 biogas units in total.</p>	<p>systems to adapt to climate change; supply chains</p>
Thailand	Experimental Coffee Farm Project	<p>The establishment of the farm was to participate in the Doi Tung Development project under the patronage of HRH the Princess Mother and to develop coffee as a sustainable crop to replace opium cultivation in line with the national and stop slash and burnt the forest by implementation reforestation program and for water the conservation purpose. The hill tribe in the areas also hired to work on the far, they have a job in their own area and prevent them to migrate to town and helping them to have income.</p> <p>Programme description</p> <ul style="list-style-type: none"> • To Arabica coffee variety adaptation trial to find the most suitable planting material both in term of agronomical 	<p>increased capacity of agriculture systems to adapt to climate change</p>

Nestle

			<p>characteristic taste, for the condition of the Northern of Thailand</p> <ul style="list-style-type: none"> • Demonstration of the most appropriate cultivation practice for coffee in high land area • Demonstration of proper post harvest treatment and installation to obtain quality coffee products • Study problems associated with Arabica cultivation • Possible source to supply of coffee planting materials for hill tribes in the area 	
Phillippines	Sustainable Coffee Farming Training Programme - The Philippines	1960-present	<p>Since the 1960s, Nestlé Philippines has sought to increase the income of local coffee farmers by improving their coffee-growing methods. In 1994, we established the Nestlé Experimental and Demonstration Farm in Tagum, where 6000 coffee farmers have been trained on the most efficient ways of growing coffee. Through regular visits to farmers, we reinforce the importance of good plantation management, such as weeding, fertilising, composting and pruning, as well as efficient harvesting and processing methods. Our sustainable farming system also encourages farmers to plant other crops between rows of coffee trees, to provide them with regular additional or alternative income. We directly purchase locally produced coffee, based on market price and quality, at our buying stations around the country. The system allows small coffee growers to sell their beans – even as little as one kilogramme at a time.</p>	<p>agriculture productivity enhancement; improved access to regional and global markets; increased capacity of agriculture systems to adapt to climate change; supply chains</p>

PepsiCo

Country	Project	Time Frame	Project Description	Subject Category	Notes
Canada	Growing Oats Protects the Soil		<p>Many areas of PepsiCo's supplies are planted with zero tillage, a way of growing crops from year to year without disturbing the soil through excessive use of cultivation practices. Advancements in machinery technology and weed control chemicals have made zero tillage a viable farmer practice that promotes soil, water and wind erosion reductions.</p> <p>Oats have an extremely fibrous and prolific root system similar to, and in some cases, better than wheat and barley. Many farmers use oats in areas with soil erosion risks from other crops to control further damage and help stabilize the soil. The extensive root system of oats enables the crop to efficiently utilize available nutrients in the soil, resulting in a lower requirement for applied fertilizers than many other crops. Other than</p>	<p>agriculture productivity enhancements; increased capacity of agriculture systems to adapt to climate change</p>	

PepsiCo

		<p>weed control, few to no chemical additives are required to grow oats, because the crop is resistant to many soil-borne diseases. Compared to other crops including wheat, rice, corn and soy, oats serve as a premier rotation crop, and the straw and crop residues returned to the soil are viewed as good sources of crop nutrients.</p> <p>In addition, Quaker Oats' grains are grown from a select group of varieties that have been bred from a diverse germplasm to assure high productivity and optimal nutritional content.</p>		
Russia	Optimizing Agrochemical Applilcation	<p>PepsiCo has several ongoing projects to try to minimize fungicide usage in Russia, the UK and egypt. One of these projects provides online data that advises growers on the correct type, amount, and time to apply fungicides for effective control of the late blight pathogen. These tools</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>	

PepsiCo

		<p>increase fungicide use efficiency and often lower the amount of active ingredient applied. Pest management plans encourage the use of tools, such as weather monitoring, to predict the arrival of plant pathogens, which result in targeted pesticide applications. PepsiCo is actively engaged in basic and applied research to control “Zebra Chip” (ZC), a disease resulting from bacterial infection in potatoes. This disease causes significant quality defects in potato chips in several countries across the globe, and is transmitted by the potato psyllid, an insect which is challenging to control. Frito-Lay, with the industry’s support, introduced new science-based solutions to replace organophosphates and more effectively control the potato psyllid. This targeted approach to pest management can reduce</p>		
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PepsiCo

			<p>risk to non-target organisms, such as pollinators and other beneficials.</p> <p>Pest management plans have led to increased scouting programs to monitor for the arrival of the potato psyllid. Through effective surveillance of the potato psyllid population, the total number of insecticide applications has been reduced.</p>		
United States	Developing Sources of Low-Carbon Fertilizer	2010-2013	<p>Tropicana Pure Premium orange juice is the first consumer product in the U.S. to obtain a carbon footprint certified by the Carbon Trust.</p> <p>The results found that almost 40 percent of the carbon footprint was from the growing of oranges, with the main contributor associated with the manufacturing process of standard fertilizers.</p> <p>To reduce the carbon footprint of this product, PepsiCo launched a three-year, 7,200-tree pilot project in Florida in 2010, which is designed to compare low carbon fertilizers with standard</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>	

PepsiCo

			<p>fertilizer and measure the impact on tree and soil health and quality of juice. The first year results look encouraging. As a result of this work, Tropicana plans to deploy the best fertilizer solutions across their Florida supply base and globally to citrus and other crop production.</p>		
United States	<p>Reducing Irrigation Water While Increasing Potato Yields</p>		<p>For three years, PepsiCo has been evaluating the impact of drip irrigation technology on water and chemical use efficiency and its effect on the energy footprint of potato production. In the U.S., a study showed success in reducing irrigation water by more than 20 percent, with an average yield increase of 19 percent. by utilizing drip irrigation to deliver crop inputs, the number of tractor passes through the field can be reduced while optimizing timing and accuracy of delivery. Nitrogen was applied several times in</p>	<p>agriculture productivity enhancements; increased capacity of agriculture systems to adapt to climate change</p>	

PepsiCo

			<p>smaller targeted amounts, optimizing nutrient uptake and avoiding leaching versus conventional fertilizer application that applies the entire amount at the beginning of the season. This application method resulted in improved plant health and better crop yield, and saved one tractor pass that equates to a savings of \$15 per acre.</p>		
China	Pioneering Crop Initiatives in Desert Conditions		<p>PepsiCo China developed a highly productive method of growing potatoes, wheat and corn in Inner Mongolia. This is a tangible demonstration to both the Chinese government and local farmers of technologies to improve low productive soils and models to improve soil stability in areas ravaged by sand storms. PepsiCo has installed the necessary infrastructure (roads, electric supply), water-conserving pivot irrigators and sand dune</p>	<p>innovative agriculture research; agriculture productivity enhancements; human capacity development; increased capacity of agriculture systems to adapt to climate change</p>	

PepsiCo

		<p>stabilizing crops (sand willows, trees) to protect soil from erosion caused by sand storms. Partnerships with local farmers in other areas of China have introduced pivot irrigation as an alternative to traditional flood irrigation with an initial water savings of 30 percent. This enables PepsiCo to rotate commercially viable crops, including winter wheat, potato, sorghum and corn. PepsiCo is moving one step further by developing drip irrigation, with the aim of conserving 50 percent of the water used as compared to traditional farming methods. PepsiCo-managed potato farms in China annually supply over 40,000 tons of potatoes. beyond farming, PepsiCo is also helping to enhance the social development of farmers and their families. For example, PepsiCo builds libraries in local</p>		
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PepsiCo

			communities to promote literacy and education for children of the local farmers.		
Mexico	Creating Sustainable Corn Initiative in Developing Communities		<p>Sabritas, PepsiCo's snack business in Mexico, was awarded a high honor from the President of Mexico for its commitment to support farming through the educampo program. educampo contributes to the overall development of low-income farming families in corn-producing communities, while also guaranteeing high-quality seeds for our snacks production in Jalisco. This is an example of how our company and the community's interests intersect.</p> <p>educampo was established through an alliance between Sabritas Foundation and the Mexican Foundation for Rural</p>	<p>agriculture productivity enhancements; human capacity development</p>	

PepsiCo

			<p>Development (FUNDAR), an organization dedicated to promoting progress in poor farming communities. This program promotes the creation of small sustainable agriculture businesses and positively impacts people's lives. between 2008 and 2010, the program had impressive results:</p> <ul style="list-style-type: none"> • total surface managed: 1,827 hectares • corn purchased by sabritas: 9,500 tons • corn yield: Doubled from 2.5 tons/hectare to 5.2 tons/hectare increasing their average crop yield by 108 percent 		
China	PepsiCo Greater China Sustainable Farming		<p>PepsiCo has about 7 farms in China and has invested more than RMB 200 million in local agricultural development, including potato farming projects. Over the past 12 year, PepsiCo has helped coached local farmers with advanced technologies and knowledge to boost productivities. Currently, the yield of PepsiCo potato farms increased to 45 tons per</p>	<p>agriculture productivity enhancements; human capacity development; increased capacity fo agriculture systems to adapt to climate change; technology dissemination</p>	

PepsiCo

			hectare. The investment also goes to other areas such as irrigation technologies that significantly reduce water consumption in potato cultivation Has also replaced diesel with electricity reducing CO2 emissions by 4,165 tons in 2009.		
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Country	Project	Time Frame	Project Description	Subject Category
	<p>Agricultural Innovation: Technology, Development, and Well-being</p>		<p>Rural farmers in sub-Saharan Africa live under risky conditions. Many grow low-value cereal crops that depend on a short rainy season, a practice that traps them in poverty and hunger. But reliable access to water could change the farmers' perilous situation. Stanford scientists are calling for investments in small-scale irrigation projects and hydrologic mapping to help buffer the growers from the erratic weather and poor crop yields that are expected to worsen with climate change in the region.</p> <p>This research area seeks to shed light on novel technological interventions in improving rural livelihoods relative to other possible interventions, in the context of the poor, agriculturally dependent communities that define rural Africa.</p>	<p>innovative agriculture research; agriculture productivity enhancements</p>

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<p>Solar Market Gardens as a Tool for Rural Development</p>	<p>June 10-present</p>	<p>Since 2007, FSE has been evaluating the livelihood and environmental impacts of an effort led by a US-based NGO, the Solar Electrification Light Fund (SELF), to use solar arrays to power irrigation pumps for growing high-valued crops (solar market gardens) in the dry season in Northern Benin. We found that photovoltaic technology yields substantial (and significant) benefits in the form of household income and nutritional intake, and is cost-competitive in the medium term, especially where fuel supplies are unreliable. See "An Alternative Development Model: Assessing solar electrification for income generation in Benin" for further information about this project.</p> <p>Photovoltaic technology yields substantial (and significant) benefits in the form of household income and nutritional intake, and is cost-competitive in the medium term, especially where fuel supplies are unreliable.</p> <p>While there will be hurdles to overcome in taking such a project to scale, we believe that this technology can play a significant role in augmenting regional food security and economic development in the Sudano-Sahel. Our strategy is to provide very careful evaluation of the solar market garden system using a randomized, control-study approach at each phase of scale up.</p> <p>In our view, it is critical that investments in this system pay off in the long run for external donors, farmer groups, and private farmers adopting the technology. We would like to see the "pay off" include more than the concept of private profitability; nutritional improvements, equity between and among households, marketing expansion, and educational impacts are all included in our scope of study.</p> <p>In an effort to scale up this technology, FSE is planning to</p>	<p>innovative agriculture research</p>
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			<p>evaluate and monitor solar market gardens in a dozen or so new villages in Northern Benin. The overall goal in this phase of scale-up is to create a regional market and learning center for the technology and farm products that can be replicated in other areas of West Africa.</p>	
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	<p>Aquaculture: Risks, Trends, and Sustainable Options</p>		<p>Ocean resources are in jeopardy given the current scope of fish capture and other human activities. Aquaculture now accounts for 50 percent of the fish consumed globally. Many capture fisheries are in decline, and marine finfish aquaculture-often considered to be the solution to problems of over-fishing and other human stresses on the ocean environment-poses additional risks to wild fish stocks.</p> <p>Researchers at FSE are currently assessing options for farming finfish sustainably in coastal ecosystems and the open ocean, and potential feed alternatives to fish meal and fish oil for the aquaculture sector, especially for dominant producers such as China.</p>	<p>innovative agriculture research</p>
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China	Aquaculture in China and its Role in Global Markets and Resources	2012-present	<p>Seafood plays a critical role in global food security and protein intake and is being supplied increasingly by aquaculture (the farming of fish, shellfish, and aquatic plants). China is the dominant leader in this field, supplying about two-thirds of global aquaculture production. China also consumes an estimated one-third of global aquaculture output, a figure that is expected to increase as the country proceeds along its developmental trajectory. The proposed project will build on our recent field surveys in China (supported previously by the Packard Foundation), with two aims: 1) to finalize our analysis and publish peer-reviewed papers on China's role in global aquaculture, seafood trade, and feed use; and 2) to convene a small international group of researchers working on Chinese aquaculture to expand the scope of our initial results. The anticipated output will be a set of unique and potentially high profile papers on China's rising role in this important area of global food production, trade, and food security. They would follow a prior set of papers by Naylor and colleagues on global aquaculture trends and impacts that have been published, for example, in Nature, Science, and the Proceedings of the National Academy of Sciences (PNAS).</p>	<p>innovative agriculture research; agriculture productivity enhancements ;</p>
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Chile	Social and environmental transformation in Chile's aquaculture industry, 1950-2000	2008-present	Recognizing that it is difficult to ameliorate environmental problems without understanding their connections to associated social changes, we aim to research the complex feedback loops that connect environmental and social change in the salmon-farming industry of southern Chile. We propose to map and analyze the social transformations brought about by comparing the region before and after the advent of salmon farming using methodologies from the humanities and social sciences. Data will be gathered through quantitative and qualitative surveys, archival research, and collaborations with ongoing research in Chile.	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change
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China	China's Impact on Forage Fisheries: Aquaculture and feed use in China	2009-present	<p>Forage fish supplies are limited and pressure on them is increasing, in large part due to China's dominant demand for fishmeal for aquaculture feeds. Given the limited nature of global marine resources and aquaculture's increasing share of fishmeal and fish oil consumption, understanding feed consumption trends in the Chinese aquaculture industry is essential to creating effective strategies for reducing the demand for reduction fishery products. However, there are serious concerns with both the availability and reliability of data coming from China, and better data are needed in order to make informed decisions regarding aquaculture development and feed use.</p> <p>This project intends to bridge this knowledge gap and provide critical data on Chinese aquaculture to members of the scientific and conservation communities. The main goals of the project are to: 1) evaluate the reliability of Chinese aquaculture statistics and develop the appropriate corrections, 2) analyze trends and predict future feed use and production in China, and 3) identify common interests and effective pathways for engaging with the Chinese aquaculture industry on minimizing their environmental impacts. This project will focus on the use of aquafeeds, but relationships established through this work could be used to gain information on other aspects of Chinese aquaculture. Project goals will be met by collaborating with the Center for Chinese Agricultural Policy (CCAP), based in Beijing, to conduct surveys of households, aquaculture producers, and feed mills, and incorporating the data collected into the development of a trade model to predict China's impact on global fishmeal demand, supply, and trade.</p>	innovative agriculture research
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<p>Farming Finfish in Coastal Ecosystems and the Open Ocean: Assessing Options for Sustainability</p>	<p>2006-present</p>	<p>Ocean resources are in jeopardy given the current scope of fish capture and other human activities. Many capture fisheries are in decline, and marine finfish aquaculture-often considered to be the solution to problems of over-fishing and other human stresses on the ocean environment-poses additional risks to wild fish stocks. The U.S. government is now proposing the expansion of marine aquaculture offshore in the federal waters of the Exclusive Economic Zone (EEZ). In comparison with near-shore aquaculture (within the 3-mile state jurisdiction), offshore aquaculture has the potential to occupy much greater space in the oceans.</p> <p>This project focuses on marine finfish aquaculture and addresses three broad questions: Are there sustainable approaches for near-shore marine aquaculture that should be promoted, and if so, how? Based on the experience of near-shore aquaculture, what practices and policy approaches should be pursued for offshore aquaculture to minimize its impacts on the marine environment? What are potential feed alternatives to fish meal and fish oil for the aquaculture sector, and how can analyzing trends in future feed use help to reduce the industries environmental impacts?</p> <p>The proposal outlines a set of activities that includes: collaboration with representatives from the marine aquaculture industry to identify "better" management practices and to design incentive approaches to improve environmental stewardship; the initiation of collaborative scientific research between Stanford and the private sector; interactions with NGOs to strengthen the scientific dimensions of their work; and policy research and communication at the national and state (California) levels. The project will build on the scientific knowledge gained from research in near-shore marine aquaculture systems during the past decade.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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	Modeling of waste dispersal associated with marine aquaculture production		The loss of organic and inorganic wastes from net-pen aquaculture production is now a well-recognized environmental problem, but there remains little scientific understanding of the true nature of waste dispersal in marine environments, and no way to systematically predict or track where wastes might go. This project, led by engineers and hydrological modelers, will assess the dispersal and fate of wastes emanating from open net-pens in marine environment through the development of fluid dynamic models. The simulation incorporates the influence of variables such as tides, currents, the rotation of the Earth and the physical structure of the pens in calculating the dispersal pattern of the waste.	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change
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<p>Biofuels Expansion: Implications for Global Food Markets, Land Use Change, and Climate</p>	<p>Rapid income growth in developing economies typically results in an increase in energy consumption by the economy as a whole. Rapidly expanding energy needs throughout much of the world have precipitated a global search for alternative fuels, a search which is profoundly affecting food markets in often under-appreciated ways, and which is rapidly changing the climate on which food production depends.</p> <p>Biofuels are a hot topic in both the academic literature and the popular press. Much of the current debate over biofuels, however, is devoted to narrow issues of energy conversion to the exclusion of understanding the broader implications surrounding their rapid development. This research area embraces these larger questions, examining the role of biofuels development on global land use change and climate, on food markets, and on global food security. Primary questions include:</p> <p>how could rapidly expanding biofuels production in developed countries such as the U.S. affect global commodity markets, either through direct price effects or longer-run changes in agricultural policy?</p> <p>Will local and global food security be enhanced or harmed under various biofuels expansion scenarios?</p> <p>How will price changes affect the ability of poor households to pay for staple food supplies?</p> <p>And what will changing commodity markets and policy mean for land use decisions in both rich and poor countries, and are their identifiable biofuels expansion pathways that are both food security enhancing and climate protective?</p> <p>To quantify these effects, our work is globally oriented, with models of world commodity markets as well as country models and case studies in China, India, Indonesia, Brazil, Senegal, and Mozambique.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change/disaste r</p>
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Indonesia	Oil palm development in Indonesia: Demand, trade, and land use	ongoing	<p>The ongoing expansion of oil palm plantations in the humid tropics, especially in Southeast Asia, is generating considerable concern and debate. Amid industry and environmental campaigners' claims, it can be hard to perceive reality. Is oil palm a valuable route to sustainable development or a costly road to environmental ruin? Inevitably, any answer depends on many choices. But do decision makers have the information they require to avoid pitfalls and make the best decisions? This research project examines what we know and what we don't know about oil palm developments.</p> <p>Some facts are indisputable: among these are that oil palm is highly productive and commercially profitable at large scales, and that palm oil demand is rising. Implementing oil palm developments involves many tradeoffs. Oil palm's considerable profitability offers wealth and development where wealth and development are needed-but also threatens traditional livelihoods. It offers a route out of poverty, while also making people vulnerable to exploitation, misinformation and market instabilities. It threatens rich biological diversity-while also offering the finance needed to protect forest. It offers a renewable source of fuel, but also threatens to increase global carbon emissions. We remain uncertain of the full implications of current choices. How can local, regional and international benefits be increased while costs are minimized?</p>	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change
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	<p>Biofuels and Food Security in South Asia and Sub-Saharan Africa: Pathways of impacts and assessments of investments</p>		<p>This project seeks to quantify how different scenarios of expanded biofuels production in rich and poor countries will affect global and regional food prices, farmer incomes, food consumption of the poor, and climate. The project involves both a global modeling effort, and linking this work with country modeling in three case-study countries (India, Mozambique, Senegal). In combination, linking global and regional models will make a more detailed assessment of the opportunities and pitfalls associated with an array of possible biofuels development scenarios (e.g. using different crops for biofuels production, using marginal land vs highly productive land, etc). We suspect the work will represent the first systematic, detailed effort to address the effects of biofuels expansion on welfare in poor countries, and the first available analytic tool for assessing possible biofuels investments in individual developing countries. Project collaborators include the International Food Policy Research Institute, the Center on Chinese Agricultural Policy, and the University of Nebraska.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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	<p>Biomass Energy: The climate protective domain</p>		<p>Biomass energy sources are among the most promising, most hyped, and most heavily subsidized future energy sources. They have real potential to heighten energy security in regions without abundant fossil fuel reserves, increase supplies of the liquid transportation fuels, and decrease net emissions of carbon to the atmosphere, per unit of energy delivered. On the other hand, increased exploitation of biomass for energy also has the potential to sacrifice natural areas to managed monocultures, contaminate waterways with agricultural pollutants, threaten food supplies or farm lifestyles through competition for land, and increase net emissions of carbon to the atmosphere, as a consequence of increased deforestation or energy-demanding manufacturing technologies.</p> <p>Planting perennial bioenergy crops can lower surface temperatures by about a degree Celsius locally, averaged over the entire growing season. That's a pretty big effect, enough to dominate any effects of carbon savings on the regional climate - David Lobell</p> <p>Here, we focus on the net forcing of climate, accounting for gains and losses of ecosystem carbon and changes in the absorption of solar radiation at the earth's surface, as well as net offsets of fossil emissions. In this project, we provide two deliverables. The first is a set of tools for quantifying the integrated impacts on climate of expanding the area utilized for biomass energy production. The second is a series of global maps of net climate forcing from biomass deployment, as a function of biofuels production technologies, efficiencies, and time horizon. The new contribution of our research is a thorough assessment of the climate consequences of converting landscapes from their previous uses to biofuels. This includes net climate forcing from both greenhouse gases (not limited to CO₂) and surface albedo (reflectance).</p>	
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			<p>The project plan integrates four streams of activity. Stream one will use a new technology for interpreting remote-sensing data to quantify carbon and climate forcing from forested lands recently converted to biomass energy. Stream two will extend this analysis to the global scale, using carbon-cycle modeling, combined with several kinds of observational data. Stream three will focus on climate forcing from food-biomass interactions, with an emphasis on understanding indirect clearing that occurs as biomass for energy pushes food agriculture into other lands. Stream four will look at net climate forcing from biofuels-related direct and indirect conversions. It will use climate models and satellite observations to quantify the component of climate forcing due to effects on albedo.</p>	
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	Agricultural applications of multi-year remote sensing		While remote sensing has been widely used for broad-scale production forecasts and early famine warning, its potential contribution to agricultural management is still far from realized. This project focuses specifically on novel uses of multi-year remote sensing data to address major issues in national and international agriculture. The research component consists of three main case studies to evaluate and demonstrate the unique capabilities that arise from multiple years of remote observations in agricultural systems: one to evaluate using MODIS measurements from 2000-2008 to map soil salinity in the Red River Valley of the central United States; a second that uses 10 years of Landsat derived wheat yield maps and existing soil databases to evaluate the effect of soil deficiencies on regional production in Mexicali, Mexico; and a third that uses 10 years of Landsat derived yields and planting dates to investigate the impact of management, soil, and climate variability on crop yields in the Punjab region of India.	innovative agriculture research; increased capacity of agriculture systems to adapt to climate change/disaster
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<p>Food Price Spikes in a Warming World</p>	<p>2010-present</p>	<p>In this project, we seek to improve quantitative understanding of price spikes in general and the potential effects of climate change on these spikes in particular. The project is divided into five steps. Part A will consider the relationship between weather outcomes and yields for the four major staple crops: corn, soybeans, wheat and rice. Part B establishes how weather distributions are predicted to change in various general circulation models.</p> <p>Part C combines the crop yield response function of part A with the predicted changes in weather outcomes to derive a distribution of yield outcomes. Specifically, we will consider how (1) yield variability increases with higher average temperatures because of the nonlinear response of yield to temperature; (2) yield variability increases with potential increased climate variability and frequency of extreme weather events; (3) bad weather events could become more or less correlated between key regions and thereby affect the extent to which idiosyncratic weather shocks may no longer average out, influencing aggregate yield variability; (4) production could become more or less concentrated in particular regions and thus again influence the variability of aggregate yield outcomes.</p> <p>Part D considers estimation of fundamental demand, supply and storage elasticities of agricultural commodities using random exogenous yield shocks as an instrument. These elasticities are required to translate yield distributions from part C into price distributions. Part E will use results from parts C and D to simulate the effects of changing climatic conditions on food prices. We will examine how the increased supply variability will affect optimal storage behavior.</p> <p>More frequent price spikes give an added incentive to</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change/disaster</p>
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			accumulate inventories, thereby dampening the predicted increase in price spikes. Similarly, continued expansion of irrigated agriculture can make yields less variable. On the other hand, some government policies, like export restrictions have the potential to increase price variability, and may also affect storage behavior.	
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<p>Quantification and reduction of uncertainties in projections of climate impacts on drought and agriculture for North America</p>		<p>Introduction to the Problem: Agricultural productivity is highly dependent on climate variability and is thus susceptible to future changes including temperature extremes and drought. The latter is expected to increase in frequency regionally over this century. However, the uncertainty in projections of drought and its impacts on agriculture is high due to emission scenarios, climate model differences, uncertainty in initial/boundary conditions, and translation to regional scales. Climate models are unanimous in projecting future warming but differ in the magnitude and even sign of regional precipitation changes. They also differ in terms of extremes of temperature, precipitation and other meteorology. When projecting future impacts on crop productivity, these uncertainties are compounded because current crop models often use simplified treatments of climate response and do not include comprehensive treatments of water availability. Therefore, projections of regional climate change, variability and its impacts on water availability and agriculture are highly uncertain and reduction of uncertainties requires attention to all levels in the climate-water-agriculture continuum.</p> <p>Rationale: Given the uncertainties in future agricultural production and the complex relationships between climate, hydrology and crop development, there is pressing need to make improved estimates of future changes in climate change and crop yields. We propose to evaluate the uncertainties in estimates of future changes in climate, water availability and agricultural production, and make improved estimates by incorporating state of the art knowledge of the relationships between climate, hydrology and agriculture into modeling and downscaling. This has ramifications for disaster preparedness and mitigation, policy making and the political response to climate change, and intersects with fundamental science questions about climate change, extremes and hydrologic</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change/disaster</p>
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		<p>cycle intensification. It is central to the mission of the Climate Program Office's MAPP program to "enhance the Nation's capability to predict variability and changes of the Earth's System" and directly addresses its priorities to evaluate and reduce uncertainties in climate projections. This work will leverage from the Pls' experience and ongoing activities in large-scale climate analysis and hydrologic modeling, particularly in changes in drought historically and under future climates, and agricultural modeling and relationships between climate and crop productivity.</p> <p>Summary of work to be completed:</p> <p>Quantify the relationships between hydroclimate variables and the implications for water, drought and agriculture based on observational data.</p> <p>Evaluate sensitivities of hydrologic and crop models to changes in climate and drought. Differences in climate variability, land-atmosphere coupling and hydrologic persistence will lead to differences in key metrics of water and agriculture which will form the basis for evaluation of the uncertainties in future projections.</p> <p>Evaluate current climate models in how they replicate these observed relationships using the CMIP5 long-term and decadal predictions.</p> <p>Estimate uncertainties in future projections of climate, drought and agriculture using a cascade of climate, downscaling, hydrologic and crop models with strategic sampling to decompose sources of uncertainty.</p> <p>Implement a set of methods to reduce uncertainties in future projections based on observational constraints including merging of climate model predictions, bias correction and scaling of climate model output, and improvements to impact models.</p>	
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<p>Agricultural Decision-Making in Indonesia with ENSO Variability: Integrating Climate Science, Risk Assessment, and Policy Analysis</p>	<p>2004-2009</p>	<p>Agricultural production in Indonesia is strongly influenced by the annual cycle of precipitation and the year-to-year variations in the annual cycle of precipitation caused by El Nino-Southern Oscillation (ENSO) dynamics. The combined forces of ENSO and global warming are likely to have dramatic, and currently unforeseen, effects on agriculture production and food security in Indonesia and other tropical countries.</p> <p>This project uses a combination of general circulation model (GCM) experiments and empirical downscaling models (EDMs) to assess the influence of global warming on the annual cycle of precipitation, and on ENSO-induced changes in precipitation and agricultural production in Indonesia. We then apply a risk assessment framework to evaluate how climate-related uncertainty and probable agricultural outcomes derived from the downscaling model can be used in policy decision-making processes. The models will focus on rice, the country's primary food staple.</p> <p>The intellectual merit of this project is based on its interdisciplinary and integrated design. To date, climate models have been developed with little knowledge of agricultural system dynamics, and agricultural policy analysis has been conducted with little knowledge of climate dynamics. The integration proposed here will permit an assessment of climate-related uncertainty associated with global warming and ENSO dynamics. It will also demonstrate how the treatment of uncertainty affects the choice and consequences of agricultural policies.</p> <p>The innovative and integrated set of models developed here will have broad impacts both on interdisciplinary educational programs and on policy formulation. Existing institutional arrangements in Indonesia will facilitate the use of these tools</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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			<p>in short- and long- run decision-making processes. Once developed, these tools can be applied in other countries where ENSO affects regional climate, and where regional vulnerabilities contribute to national economic instability.</p>	
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<p>Impacts of ENSO Events on Chinese Rice Production and the World Rice Market</p>	<p>Climate shocks leading to floods and droughts present high levels of uncertainty and difficulties in decision making for water district managers, agricultural producers, and policymakers throughout the world. This project focuses on the impacts of El Nino-Southern Oscillation (ENSO) events on precipitation and temperature variability, and in turn on water management and crop production, in one of China's major rice bowls, Jiangxi Province. Jiangxi is also one of China's poorest provinces, where swings in crop production and prices can jeopardize rural incomes and food security.</p> <p>The project involves four integrated components:</p> <ul style="list-style-type: none"> the development of empirical downscaling models (EDMs) to quantify local climate patterns within Jiangxi province based on large-scale climate dynamics associated with ENSO; the construction of a hydrological model for Jiangxi to estimate the relationship between local precipitation, reservoir levels and storage, and water management decision practices; the use of regression models to analyze the effects of ENSO-induced climate variability on seasonal and annual rice production in Jiangxi; and the development of a modeling framework to analyze the impacts of ENSO events on rice trade and prices within China and within the Asian rice economy. <p>The development of an ENSO-trade model, which builds on earlier research funded by NSF on ENSO-rice relationships in Indonesia and the Philippines, provides an important intellectual contribution that will permit further analysis of ENSO impacts on agriculture and food security throughout Southeast and East Asia. It also has practical policy implications for governments seeking to stabilize commodity prices under unstable climatic conditions.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change; agriculture productivity enhancements</p>
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A key contribution of the project is the creation of a new collaborative team of Chinese and American researchers whose work will enhance interdisciplinary educational opportunities in their home institutions, scholarly exchange between countries, and policy relevant science within China. The research team includes atmospheric scientists, hydrologists, economists, remote sensing experts, and policy analysts. Undergraduate and graduate students from the U.S. and China will be brought into the study with funding from this grant and from existing academic funding sources within the home institutions. The project represents one of the inaugural activities for the Center for Global Forecasting within the Chinese Academy of Sciences, and it will lead to a set of policy briefs to the current Premiere of China (Wen Jiabao) and his rural policy team (headed by Chen Xiwen).

Beyond China, the methods and results of the research will be shared with the international science and policy communities through a set of organized public meetings within Southeast Asia, the publication of peer-reviewed papers in leading climate, hydrology, and policy journals, and public talks at professional society meetings and smaller meetings related to future climate impacts. The results will also be disseminated through consultations with aid agencies (e.g., Asia Development Bank, USAID, the World Bank), the Consultative Group on International Agricultural Research (CGIAR), the Asian Disaster Preparedness Center (Extreme Climate Events Program), and private foundations that invest in agricultural technologies and programs to enhance food security (e.g., the McKnight Foundation, the Rockefeller Foundation, the Gates Foundation).

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	Orphan crops		<p>Orphan (or minor) crops are those crops which are typically not traded internationally but which can play an important role in regional food security. For various reasons, many of these crops have received little attention from crop breeders or other research institutions wishing to improve their productivity. This project produced an earlier paper on the role of orphan crops in regional food security, with implications for national and international breeding efforts. The next stage in the project will study the effects of future climate change on orphan crops and plant genetic resources, with the dual goals of both guiding future efforts at conservation of plant genetic diversity and painting a clearer picture of the effects of climate change on food security.</p>	innovative agriculture research
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	<p>Prioritizing Investments in Food Security Under a Changing Climate</p>		<p>Over much of the world, the growing season of 2050 will probably be warmer than the hottest of recent years, with more variable rainfall. If we continue to grow the same crops in the same way, climate change will contribute to yield declines in many places. With potentially less food to feed more people, we have no choice but to adapt agriculture to the new conditions. New approaches are needed to accelerate understanding of climate impacts on crop yields, particularly in tropical regions.</p> <p>This project is studying the potential effects of climate change on agriculture and adaptations options in African agriculture. The work will seek to assess climate threats to staple food crops at a country level, quantify the sources of uncertainty inherent in these assessments, and determine what implications shifts in crop climates have for agricultural adaptation and genetic resources preservation - with the end goal of helping prioritize investments in agricultural development and food security under a changing climate.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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	<p>The Yaqui Valley Revisited: A case study on agricultural sustainability in Mexico</p>		<p>The Yaqui Valley is the birthplace of the Green Revolution and one of the most intensive agricultural regions of the world, using irrigation, fertilizers, and other technologies to produce some of the highest yields of wheat anywhere. It also faces resource limitations, threats to human health, and rapidly changing economic conditions. In short, the Yaqui Valley represents the challenge of modern agriculture: how to maintain livelihoods and increase food production while protecting the environment.</p> <p>The purpose of this project is to examine what has happened in the Yaqui Valley since the Stanford Project left the Valley in 2007. Emphasis will be on fertilizer use; water allocations; institutional changes in water, credit, and ejido villages; and agricultural prices and subsidies. More generally the emphasis will be on sustainability in the Valley, and on whether various measures of sustainability have improved or worsened.</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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<p>Consequences of Increased Global Meat Consumption on the Global Environment: Trade in virtual water and nutrients</p>	<p>Meat production is projected to double by 2020 due to increased incomes, population growth, and rising per capita global consumption of meat. In order to meet this demand, industrialized animal production systems are proliferating and grain production for feed is expanding. These trends will have major consequences on the global environment-affecting the quality of the atmosphere, water, and soil due to nutrient overloads; impacting marine fisheries both locally and globally through fish meal use; and threatening human health, as, for example, through excessive use of antibiotics.</p> <p>Senior fellows Harold Mooney, Rosamond Naylor, and Walter Falcon, along with a team of international scholars, including economists, ecologists, and livestock specialists, are conducting a global accounting of these trends, connections, and projections-focusing specifically on how the global expansion of meat production and trade is affecting "virtual" environmental resources in places widely separated in space.</p> <p>The concept of "virtual" resources refers to the resources necessary to produce feed grains and other feed inputs or meat that is subsequently shipped to some place distant from where it was originally produced. The result is that the receiving nation gets the benefit of the end product without incurring the resource and environmental costs of producing the food, while the producing nation pays these non-market costs. Industrialized livestock systems depend heavily on cereal grains and have large impacts on the transfer of "virtual" water and nutrient resources both in the grain-producing and the grain-receiving and meat-producing nations.</p> <p>By developing a global accounting system, Mooney, Naylor and Falcon will be able to suggest policies that ameliorate the</p>	<p>innovative agriculture research</p>
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			<p>negative aspects of these developments and position themselves to address the multiple consequences of industrialized animal production systems. Progress in this targeted area will add a vital piece to understanding "Industrialized Animal Production Systems"-an initiative supported by the U.N. Food and Agricultural Organization, the German national Scientific Committee on Problems of the Environment, and the International Council for Science.</p>	
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<p>Integrated Studies of Sustainability: Land-Water systems of the Yaqui Basin</p>	<p>The Yaqui Valley, in Sonora, Mexico is a region of rapid demographic, economic, and ecological change in both upland and coastal areas. Situated on the west coast of mainland Mexico on the Gulf of California, the Valley currently comprises 225,000 has of irrigated wheat-based agriculture: recently adding aquaculture to its landscape. It is the birthplace of the Green Revolution for wheat and one of Mexico's most productive breadbaskets. Today, population growth, urbanization, agricultural intensification, land use change, water diversions, groundwater pumping, coastal modifications, wetland conversions, and aquaculture growth threaten the sustainability of certain of the region's resources. Research in the Valley has become timely and critical, both in the Valley's own right, and because it is a likely forerunner to similar irrigated valleys around the world.</p> <p>CESP began research in the Valley in 1992 when Stanford Professors Pamela Matson and Rosamond Naylor teamed up with Dr. Ivan Ortiz-Monasterio of the International Maize and Wheat Improvement Center (CIMMYT) to initiate a study of fertilizer use in intensive wheat-based agriculture. Results of this study indicated that farmers used more fertilizer than required, and excess fertilizer N was lost in the atmosphere in the form of trace gases that cause air pollution and to water systems where it is carried to the Gulf. The researchers evaluated a number of alternative fertilizer management options, and found that farmers could save money by using less fertilizer and still receive comparable yields from their crops.</p> <p>Since this initial study, Stanford's research presence within the Valley has expanded to include different dimensions of agriculture and variability, the role of institutions and impact of national and international policies, water resource use and</p>	<p>innovative agriculture research; increased capacity of agriculture systems to adapt to climate change</p>
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			management, aquaculture development, the affect on estuaries of upland land use change, and the burgeoning role of the livestock sector	
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	Food and Nutrition Security in an Era of Economic Volatility		<p>Food insecurity deaths during the past 20 years outnumber war deaths by a factor of at least 5 to 1. Estimates suggest an additional hundred million people could be pushed below the poverty line with the recent food price increases, adding to the roughly one billion people who already live day in and day out in chronic hunger. Such hunger is most pronounced in rural areas of Africa and Asia, and especially in regions prone to drought or located in fragile or degraded environments.</p> <p>The recent rapid rise in global food prices and the attending food riots and shortages throughout much of the developing world emphasize both the deep interconnectedness of today's global food markets, and the fragility of past successes in reducing global hunger and poverty. FSE researchers are attempting to put the causes and consequences of the crisis on both an empirical footing and in the proper policy context, with the goal of helping inform both short- and long-run interventions that could stabilize prices at levels acceptable to both producers and consumers in poor countries.</p>	innovative agriculture research
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<p>Agricultural Lives of the Poor</p>		<p>This project seeks to summarize, systematize, and make publicly available basic data on the agricultural production and consumption behavior of the global poor. Using existing household survey datasets from developing countries, the project aims to characterize food production and consumption patterns across rural and urban areas, income classes, and food groups. In particular, the project will focus on characterizing the net food consumption/production position of households (i.e. whether a household produces more than it consumes), across income classes, food groups, and individual crops, as well as describing vulnerability characteristics and the range of substitution options available to households in these different categories. Collecting and systematizing such data across a geographically varied range of two dozen poor countries, and making the summarized data publicly available in a searchable database, will fill a large void in the development field. The results of this project will inform efforts to prioritize and target agricultural-related interventions and policy reforms, and to understand and manage the distributional effects of various market developments on a regional-to-global scale.</p> <p>Motivation The emphasis on net consumption/production is essential in order to fully comprehend the lives of the majority of the global poor. Three quarters of the world's poor, the 2.5 billion people who live on less than \$2 a day, live in rural areas. Agriculture is especially important for these people as a means of income generation and food security, and as a sector, is credited for driving economic growth in the rural economy. As rural households are simultaneously consumers and producers of agricultural commodities, net consumption/production position is crucial for understanding the heterogeneous impacts of public policies, changes in global markets and</p>	<p>innovative agriculture research</p>
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			prices, and environmental changes. In conjunction with data on indicators of households' abilities to respond, improved targeting of both research and interventions is possible.	
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	Global Food Policy and Food Security Symposium Series		FSE's Global Food Policy and Food Security Symposium series brings the world's leading policy experts in the fields of food and agricultural development to Stanford to participate in an integrated, twelve-lecture series on pro-poor growth and food security policy. Participants are addressing the major themes of hunger and rural poverty, agricultural productivity, resource and climate constraints on agriculture, and food and agriculture policy. The emphasis of the series is on the implementation of sound policies that will enhance agricultural production, incomes, and resource stewardship. Participants are also writing significant papers that bring together new, relevant thinking about a particular topic area. At the end of the series, a volume of edited papers on international food security and food policy issues will be published. All program products will be freely available on the FSE website.	innovative agriculture research; policy research
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USAID

Country	Project	Time Frame	Description	Subject Category	Field1
Philippines	Ecosystems Improved for sustainable Fisheries Program	6/2012-6/2017	The program contributes to priority goals and actions laid out in the Philippine Development Plan (2011-2016), particularly Chapter 4 (Competitive and Sustainable Agriculture and Fisheries) and Chapter 10 (Protection, Conservation and Rehabilitation of Environment and Natural Resources). It is also in line with the current U.S. Country Assistance Strategy with respect to assistance directed at reducing threats to biodiversity and improving natural resources and environment.		
Indonesia	Agribusiness and Support Activity (AMARTA II)	4/2011-4/2016	High-value agriculture products have real potential to drive growth, employment and incomes. However, in Indonesia, the competitiveness of this sector is constrained by low investment, inadequate infrastructure and underdeveloped agribusiness practices. AMARTA II is USAID's response to these challenges in four key provinces: West Java, North Sumatera, South Sulawesi and Bali.		

Walmart

Project	Project Description	Subject Category
<p>Global Sustainable Agriculture Goals</p>	<p>Support farmers and their communities- By the end of 2015 in emerging markets, Walmart will help many small and mid-sized farmers gain access to markets by:</p> <p>Selling \$1 billion in food sourced from 1 million small and medium farmers; providing training to 1 million farmers and farm workers in such areas as crop selection and sustainable farming practices -- the company expects half of those trained to be women; and increasing the income of the small and medium farmers it sources from by 10 to 15 percent.</p> <p>In the U.S., Walmart will double its sale of locally sourced produce and increase its purchase of select U.S. crops.</p>	<p>improved farmer access to capital finance and risk management instruments; improved access to regional and global markets</p>

Walmart

<p>Global Sustainable Agriculture Goals</p>	<p>Sustainably source key agriculture products: Farming practices are having unintended side effects, from deforestation of the world's rainforests to increasing greenhouse gas emissions. Walmart will focus on two of the major contributors to global deforestation, palm oil and beef production.</p> <p>Require sustainably sourced palm oil for all Walmart private brand products globally by the end of 2015. Sourcing sustainable palm oil for our U.K. and U.S. private brand products alone will reduce greenhouse gas emissions by 5 million metric tons by the end of 2015.</p> <p>Expand the already existing practice of Walmart Brazil of only sourcing beef that does not contribute to the deforestation of the Amazon rainforest to all of our companies worldwide by the end of 2015. It is estimated that 60 percent of deforestation in the Brazilian Amazon is related to cattle ranching expansion. To help reach these goals, Walmart's global markets have also established country specific commitments. For example:</p> <p>In India, source 50 percent of its fresh produce through its Direct Farm Program; In China, upgrade 15 percent of Direct Farm products from Green to Organic</p>	<p>increased capacity of agriculture systems to adapt to climate change;</p>
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Walmart

	<p>certified; In Japan, reduce in-store produce waste by 35 percent and increase the number of produce farmers it sources from directly from 15,000 to 17,000; and In Canada, purchase 30 percent of the produce assortment locally on an annual basis.</p>	
<p>Global Sustainable Agriculture Goals</p>	<p>Produce more food with fewer resources and less waste Walmart has one of the world's largest food supply chains and is committed to reducing and optimizing the resources required to produce that food and driving more transparency into its supply chain. For the first time Walmart will ask suppliers about the water, energy, fertilizer and pesticide they use per unit of food produced. The goals include:</p> <p>accelerating the agricultural focus of the Sustainability Index, beginning with a Sustainable Produce Assessment for top producers in its Global Food Sourcing network in 2011; investing more than \$1 billion in its global fresh supply chain in the next five years; and,</p>	<p>increased capacity of agriculture systems to adapt to climate change; agriculture productivity enhancements</p>

Walmart

	reducing food waste in its emerging market stores and clubs by 15 percent and by 10 percent in stores and clubs in its other markets by the end of 2015.	
Heritage Agriculture Program	In the U.S., Walmart's Heritage Agriculture program will help the company double the sale of locally grown food. The program focuses on sourcing produce from states and regions with long histories of agricultural production. Three of Walmart's largest Heritage Agriculture programs are in the I-95 corridor along the East coast, the Delta region in the South and the Mid-America region of the Midwest. Sourcing examples include tomatoes, blueberries and broccoli in the I-95 corridor, peaches, cucumbers and strawberries in the Delta region and potatoes, onions and apples in the Mid-American program.	improved access to regional and global markets; agriculture productivity enhancements

World Fish

Country	Project	Time Frame	Project Description	Subject Category
Indonesia, Cambodia, Lao PDR, Myanmar, China, the Philippines, Malaysia, Thailand, Vietnam	EEPSEA – Economy and Environment Program for Southeast Asia	November 2012 - October 2016	<p>The Economy and Environment Program for Southeast Asia (EEPSEA) project is helping nations in Southeast Asia towards an environmentally sustainable and economically profitable future through investment in local research, training and policy development. The aim of the project is to help the countries and regional political organizations of Southeast Asia evaluate the economic and environmental impacts of projects, programs, and policies through the local capacity that it helps develop. The project also develops local capacity to analyze environmental problems, and use economic tools to find economically viable solutions that bring the minimum environmental damages.</p> <p>The WorldFish project is being funded through a well-established partnership between the International Development Research Center (IDRC) and the Swedish International Development Cooperation Agency (SIDA). The four-year project builds upon nearly two decades of work by the IDRC and SIDA to support capacity building for environmental economics research in Southeast Asia.</p> <p>The project is taking a three-pronged approach to improve local research capacity and environmental economic researchers' ability to influence policy.</p> <p>Supporting Research Efforts</p>	innovative agriculture research; funding for agricultural research; increased capacity of agriculture systems to adapt to climate change

World Fish

		<p>Three types of research grants are available through the project, each responding to differing levels of researchers' capacity to conduct environmental economic research. Competitive research grants are available to high-capacity graduate student researchers in Cambodia, China, Indonesia, Lao PDR, Malaysia, the Philippines, Thailand and Vietnam. These grants are training the next generation of environmental economics researchers. Support for study and field trips to developed countries such as the USA, Canada, Australia and the UK is also included. Small research grants are funding researchers from provincial colleges and universities in Cambodia, Lao PDR, Indonesia and Myanmar – countries where capacity-building is needed most – and emphasize collaboration with high-capacity countries to maximize learning opportunities. The final category of research grants is for cross-country research projects that focus on shared environmental challenges and capture insights and perspectives from multiple nations. These projects are extending the work of previous initiatives and aim to bridge the gap between research and policy by putting research findings into the hands of policy makers and relevant regional organizations.</p> <p>A cornerstone of the EEPSEA program is researcher mentoring. Researchers new to the field of environmental economics are teamed up with international and regional experts, who can provide valuable guidance and encouragement throughout the research project.</p>	
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			<p>Training a Research Community Ongoing professional development is an essential research activity. The project is bolstering research capacity in Southeast Asia by supporting researchers' training needs. Short-term regional training courses that focus on environmental economic research tools, and in-country training courses for low-capacity countries, are both enhancing research know-how in the region.</p> <p>The project is providing support for national and regional environmental economics associations to hold regular meetings, and helping to establish an EEPSEA alumni network. These activities foster regional collaboration and knowledge exchange, and create a vibrant and interactive community of researchers. Support for researchers to attend regional and international conferences and courses, is also provided. In addition, annual conferences and researchers' workshops will bring together grant holders to share their research findings and policy implications.</p> <p>Communicating Results for Policy Impact Ensuring that research is translated into practice is one of the ultimate goals of the project. Researchers are encouraged to engage with policy-makers through policy-maker forums and dialogue sessions. The project also providing researchers with support to produce high-quality research reports, policy briefs for policy-makers, and information booklets for natural resource</p>	
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			<p>managers.</p> <p>The media and judiciary can play an important role in improving environmental management. The project is training 'green' members of the judiciary and environmental journalists in the region to ensure that environmental economic considerations are not overlooked by these institutions.</p> <p>By building the discipline of environmental economics at the national and regional level, the complex interaction between the environment and economics will remain at the forefront of future policy development. Taking into account the impact of economy-wide impacts of environmental policies, and the environmental impacts of economic policies, will ensure that the pursuit of sustainability will also benefit the poor.</p>	
Philippines	DA-BAR AAS Capacity Building - Aquatic Agriculture Systems Capacity Building Project (AAS Capacity Building) in the Philippines	Feb 2012- Jan 2013	<p>Fisheries, agriculture and forestry play a critical role in supporting the livelihoods of many communities in the Philippines. The government and the development community recognize the potential of aquatic agricultural systems to reduce poverty; however, a clearer understanding of the complexities of these systems and the communities who depend on them is needed to harness their full value. In response to this need, the Aquatic Agriculture Systems Capacity Building Project aims to enhance the capacities of the Bureau of Agricultural Research (BAR) and Philippine research partners in understanding aquatic agricultural systems and their development challenges.</p>	<p>agriculture productivity enhancements ; human capacity development; innovative agriculture research; funding for agricultural research</p>

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			<p>Enhancing capacity to support poverty reduction in aquatic agricultural systems</p> <p>In many parts of the Philippines dependence on aquatic agricultural systems is very high, for example in northern Mindanao and the Zamboanga Peninsula over 65% of the population relies on these systems for employment and income. However, the communities in these systems face a growing series of challenges as fish stocks are depleted, productivity declines and uplands are degraded. The Philippines is also highly vulnerable to climate variability and change, and to natural disasters. Flooding in Mindanao and the Visayas has caused considerable damage to agricultural production, as well as property and infrastructure.</p> <p>In the face of these challenges, the government has prioritized its efforts to improve agricultural production, and fisheries and coastal resource management. The BAR provides central direction and coordination of agricultural and fisheries research; striving to increase productivity and alleviate poverty, whilst promoting sustainability and protecting biodiversity.</p> <p>WorldFish sees reducing poverty in aquatic agricultural systems as essential critical component of development, and has collaborated with Philippine national institutions for more than 30 years. The AAS Capacity Building Project is funded by BAR and jointly implemented by WorldFish and BAR. The project aims to enhance</p>	
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		<p>the capacity of BAR staff and other Philippine national research partners in understanding the drivers of ecosystems and aquatic agricultural systems to ensure sustainability and guide management and governance responses.</p> <p>The project will focus on the following priority areas:</p> <p>Enhancing technical skills in integrated national resource management: The technical skills of national research partners will be enhanced through a series of conferences, seminars and short-term courses. Targeted training will also be organized in consultation with the BAR to support the research and development agenda for improved aquatic agricultural systems.</p> <p>Strengthening organizational capacity of national research partners to address challenges in aquatic agricultural systems: A series of consultations in selected areas of the Philippines will identify a comprehensive research agenda that will address priority needs, while at the same time aligning efforts to address poverty with national programs on poverty alleviation.</p> <p>Creating and strengthening learning networks and facilitating the exchange of scientists between WorldFish and national research institutions: The unique learning opportunities provided by diverse aquatic agricultural systems will be enhanced by cross-country exposure and shared field experiences, promoting learning beyond the</p>	
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			<p>classroom. The BAR and WorldFish will identify a program of exchange and field visits for targeted researchers.</p> <p>Considering the complexities of aquatic agricultural systems and the communities that depend on them, it is hoped that this project will enhance the capacity of national researchers to realize the full potential of integrated agriculture and aquaculture in the Philippines.</p>	
Cambodia, Lao PDR, and Vietnam	MK1-On Optimizing Water Management in the Mekong Basin for Livelihoods	uly 2010-December 2013	<p>The main aim of the project is to promote the optimization of reservoir water management to benefit local livelihoods. The project “Optimizing Water Management in the Mekong Basin for Livelihoods” will explore ways in which riparian communities can improve their livelihoods by taking advantage of agricultural, fisheries and other opportunities afforded by improved access to from reservoirs. Suitable strategies will be identified and tested to broaden the uses of reservoir water to support livelihoods, benefit riparian and downstream communities alike, increase the lifespan of reservoirs, while maintain hydropower generating capacity.</p> <p>The main approach taken to achieve this is through a study on the current livelihoods system of the people in the impact zones and by exploring reservoir management scenarios based on various stakeholder needs and priorities for water use. Research is being undertaken on water use and livelihoods, taking into account the various needs (agriculture, fisheries, hydropower, environmental e.g. wetlands preservation) of</p>	innovative agriculture research; agriculture productivity enhancements

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			<p>different user groups (gender), as well as seasonal variation.</p> <p>The project will produce strategies for optimizing reservoir water management that increase the productivity of agriculture and fisheries, improve community livelihoods and contribute to environmental conservation, at an acceptable cost to hydropower generation and irrigation. Resource use options and livelihood adaptation strategies will be identified by using decision support system tools, under a set of development and management objectives prioritized by stakeholders for each impact zone of the selected reservoirs. Finally the project will indentify enhanced, improved or alternative livelihoods options available for farmers, fishers and riparian communities, through optimizing benefits of the selected reservoirs.</p>	
Philippines	Economic Analysis of Climate Change Adaptation Strategies in Selected Coastal Areas in the Philippines	March 2012 - February 2013	<p>The Philippines is particularly vulnerable to climate change, as its extensive coastline is a key environmental and economic resource. Conserving ecosystems and protecting livelihoods depends to a large extent on stakeholders' ability to predict the impact of climate change and on communities' capacity to adapt. This study is an effort to better understand the risks associated with climate change, and assess adaptation and policy options to address these risks more effectively.</p> <p>Identifying risks and recommending adaptation strategies Coastal communities in the Philippines remain</p>	<p>innovative agriculture research; increased capacity fo agriculture systems to adapt to climate change/disaste r</p>

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		<p>largely dependent on fisheries and other aquatic resources, which provide about half the dietary protein needs of the population. However, the quality and quantity of harvestable resources have declined dramatically as a result of overfishing and habitat degradation. These stresses are now being exacerbated by the effects of climate change. Greater variability in patterns of rainfall and runoff; increases in the frequency, intensity and duration of storms, and rising sea levels are now recognized as inevitable consequences of climate change. With 60% of the population living in coastal areas, the potential negative impacts on lives and livelihoods is enormous.</p> <p>In the last decade, various initiatives to identify and implement strategies that will better equip coastal Filipino communities to cope with climate change have been pursued. Despite these efforts, the capacity to adapt is limited at best. The country has insufficient expertise and facilities to provide reliable predictions of climate change and its impact on different sectors. Planning and communication processes are also limited, lacking the effective participation of stakeholders, especially local people. Vulnerable groups in general do not have access to resources for adaptation, making them less resilient to climate change.</p> <p>In light of these constraints, this study is a positive step towards identifying the impacts of climate change and assessing the vulnerabilities of</p>	
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		<p>communities in selected coastal areas. It is essential that such initiatives consider not only biophysical factors but also socioeconomic dimensions, which to a large extent dictate the range of conservation and adaptation measures that can be effectively applied. This study brings together scientists, government planners, and economists to recommend adaptation actions for coastal areas, taking into consideration the social dimensions of equity and rights. The study covers the three coastal regions of Babuyan Channel, Sogod Bay and Lanuza Bay, comparing common experiences and results across a range of options and hazards. The study aims to validate and assess climate change impacts in these areas; measure the economic costs and benefits of specific effects of climate change; assess adaptation strategies; recommend viable adaptation options, and explore and identify emerging issues in the assessment of vulnerability and economic analysis of adaptation.</p> <p>The results of this study will provide valuable information to local government units so they can adequately identify potential hazards and initiate sustainable strategies. It will also assist national decision makers in integrating robust adaptation strategies into their development plans and budgets in a context of high uncertainty, competing needs and limited financial resources. However, the greatest beneficiaries of the study will be the local communities, for whom well formulated adaptation strategies are critical. These communities will also be empowered</p>	
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			<p>through a greater understanding of the effects of climate change and what they can do to improve their own resilience.</p>	
Philippines	Evaluation of Nile Tilapia Strains for Aquaculture in the Philippines	Oct 2011-Sep 2012	<p>The Philippines derives substantial benefits from its aquatic and fisheries resources. The contribution to the country's total fish production from aquaculture has consistently increased, outpacing growth in both the small-scale and commercial fishery sectors.</p> <p>This project evaluates the relative growth performance of Nile tilapia strains that are currently cultured in the country and compares them with a GIFT strain that has been undergoing 13 generations of selection—five generations in the Philippines and 8 generations in Malaysia.</p> <p>The Nile in the Philippines</p> <p>Tilapia, principally Nile tilapia (<i>Oreochromis niloticus</i>) is the second most important farmed aquaculture species in the Philippines, after milk fish. The Nile tilapia was imported into the Philippines in the early 1970s but after some initial success and popularity became inbred and yields declined. A ten year multi-national effort for genetic improvement led to the development of the hugely successful GIFT strain (Genetically Improved Farmed Tilapia).</p> <p>Several different strains of Nile tilapia have now</p>	<p>agriculture productivity enhancement; innovative agriculture research</p>

World Fish

		<p>been developed within the Philippines and overseas. The Bureau of Freshwater and Aquatic Resources (BFAR) has developed the Genetically Enhanced Tilapia-Excellent strain (GET-EXEL), and the Freshwater Aquaculture Center of Central Luzon State University (FAC/CLSU) has bred the FaST strain. In Norway, a private company Genomar markets the fish under the name GenoMar Supreme Tilapia (GST). The agreement of GIFT Foundation with Genomar ceased in 2005 and efforts were made to obtain research fund to continue the selection program. In April 2010, a new collaborative research partnership was formed among three institutions: BFAR-NFFTC, FAC/CLSU and Feedmix Specialist II. The GIFT strain was renamed to GIFT Feedmix Fortified (GIFTFF).</p> <p>Today, though GIFT and GIFT- derived strains account for around 70% of total tilapia production in the Philippines, and the variety of strains offers farmers more variety to choose from, little analysis has been carried to compare the benefits of these strains.</p> <p>Splash of the Titans</p> <p>The ultimate aim of the current study is, therefore, to identify superior strains of Nile tilapia for aquaculture in the Philippines. To achieve this aim the project will develop an experimental protocol for performance evaluation and then conduct experiments to identify the superior strains. At least four strains will be</p>	
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		<p>assessed for this study: GIFT developed by the WorldFish Center from the nucleus in Malaysia, GET Excel of BFAR, FaST developed by CLSU, and GIFTFF developed by collaboration between BFAR-NFFTC, FAC/CLSU and Feedmix Specialist II.</p> <p>Once high performing tilapia strains are identified, their distribution via hatcheries can increase fry availability and decrease the costs of seed stock. In this way, the superior genetics can be disseminated directly to fish farmers or indirectly through public and private hatcheries.</p> <p>Breeding programmes will be implemented to further improve genetic performance of the identified strains. This will help to enhance the capacity of local personnel working in tilapia breeding and production hatcheries.</p> <p>Although the ultimate target groups of this project are fish farmers and small householders, a wider range of beneficiaries are expected to be reached, including consumers generally, commercial producers and scientists. The partner institutions involved will gain experience and knowledge on the design of strain comparison experiments, and other aspects of modern quantitative genetics.</p> <p>The project is expected to have positive social and economic impacts, improving the living standard of poor people, and contributing to gender equality via the creation of employment opportunities for women in rural areas where</p>	
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			many are involved in seed, feed and post-harvest activities.	
Bangladesh, China, Thailand, Vietnam	Sustainable Trade in Ethical Aquaculture	Aug 2009 - Jul 2013	<p>Trade in farmed aquatic products is growing rapidly. Over 50% of fish production is traded internationally. The export of fin fish and shellfish from Asia to Europe is now, in value terms, the most important internationally traded food commodity sector. However, there are major issues regarding the sustainability of this trade from ecological, public health and broader ethical perspectives.</p> <p>This increase in production has been driven by a combination of favourable attitudes towards fish, both from nutritional and health perspectives, and from adverse publicity towards traditional alternatives from issues such as avian flu in poultry, foot and mouth disease in sheep, salmonella in eggs and reports of chemical pollutants entering the food chain. This has also led consumers to be more interested in fish and more vigilant in knowing the provenance of their food and in trusting the supply chain from producer to market. Consumers have also sought greater reassurance in their food purchasing decisions through additional attributes such as certification schemes that focus on fair trade, animal welfare, and environmental impacts including overexploitation of fish stocks.</p>	increased capacity of agriculture systems to adapt to climate change; supply chains

World Fish

		<p>The Asia-Europe trade in farmed seafood poses particular challenges due to the natural propensity of seafood to perish and the potential public health implications. The EU has responded with stringent requirements that have often made compliance difficult for many Asian producers. The sustainability issues have been addressed through a plethora of different certification and labelling schemes, using different standards and often with conflicting interests. This has increased costs for producers and other value chain actors and made it more difficult for them to partake in international trade. It may also preclude vulnerable groups from participation.</p> <p>Towards overall sustainability The project proposes to establish an evidence-based framework that will contribute towards harmonising these differing standards into a single 'Ethical Aquatic Food Index' (EAFI). This will be a qualitative, holistic measure of overall sustainability to support consumers' purchasing decisions. The EAFI will be based on detailed research centred on a Life Cycle Assessment of the processes involved from production to marketing and consumption, aligned with analyses from the sustainable livelihoods approach, systems thinking and the value chain approach. The findings will be exposed to a rigorous debate amongst stakeholders, especially with regard to local and international perspectives of 'values' and the broader ethical principles.</p>	
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World Fish

		<p>The fisheries sectors covered represent the main aquaculture products reaching EU markets: tilapia, catfish, shrimps and prawns. The key stakeholders include micro-, small-, and medium-sized enterprises (MSMEs) in Bangladesh, China, Thailand and Vietnam where sustainability is essential in the face of rapid growth in aquaculture production.</p> <p>The social and economic dynamics of value chains The WorldFish Center is leading one component of this project, Work Package 5, which studies the social and economic dimensions of the global value chains for these aquatic products. To this end, a value chain approach aims to assess the inter-linkage of different actors involved in the production, processing and distribution of the products and the institutional framework affecting the functioning of the chain, while a livelihoods approach assesses the participants' income generating strategies, their vulnerability and the equity in those outcomes</p> <p>The Work Package thereby examines both the vertical linkages (i.e., the flows of material resources, finance, knowledge and information between buyers and suppliers) and the horizontal impacts (i.e., how the value chains impact livelihoods, vulnerability, gender relations, equity) in the value chains of the selected species in the four countries.</p> <p>Outcomes By strengthening the knowledge base surrounding</p>	
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World Fish

			<p>the EU-Asia seafood trade, the project will provide the evidence required to support further expansion whilst ensuring a fair deal for those producers and other value chain actors who are meeting appropriate social and environmental goals and offering a safe and sustainable product for consumers.</p> <p>Through this research WorldFish will provide a key socio-economic dimension to the project and a valuable contribution towards the implementation of the Ethical Aquatic Food Index. The research will also improve understanding of the opportunities for European exporters to supply the expanding middle class in Asia.</p>	
Philippines	Food Security - Aquaculture	Feb 2010 - Oct 2011	<p>Improved Food Security through Aquaculture</p> <p>About 75% of Philippine coral reefs, lakes, mangroves, primary forests, and rivers have been destroyed or damaged, principally as a result of unsustainable practices and population growth. This degradation threatens the food security and health of millions of Filipinos, with the incidence of poverty in rural areas at 54%, more than double that of urban areas (25%).</p> <p>Fish have always been a vital source of animal protein, healthy lipids, and micronutrients in the country, but declining capture fisheries and higher fish prices have reduced the availability and affordability of fish for consumption by the poor. Some poor fishers, who previously caught about 20 kg of fish per day, now catch only about 2 kg. Aquaculture is now seen as the main means of</p>	<p>infrastructure development; supply chains; technology dissemination; post harvest loss reduction; agriculture productivity enhancements ; human capacity development</p>

World Fish

		<p>providing more fish to feed the country's urban and rural poor, with farmed fish like tilapia now cheaper than chicken and increasingly seen in the diets of poor people.</p> <p>Focused-Food Production Assistance to Vulnerable Sectors (FPAVAS)</p> <p>FPAVAS is one of a number of European Union projects that were introduced into the Philippines in direct response to the 2008 global food crisis. The project aims to alleviate poverty and improve the wellbeing of farmers and fishers, while also ensuring their access to safer food, by focusing on food production in the upland, lowland, and water bodies of coastal and inland areas in six priority provinces.</p> <p>The provinces were selected as partners based on their high incidence of poverty and vulnerability to the risks of climate change. One of the provinces has been given priority due to its enormous agricultural potential. There is also a strong likelihood that all six provinces will maximize benefits from the interventions/support so as to produce economic impacts that could spill over into other poorer areas.</p> <p>Given the economic imperative identified above, one of the key components of this project relates to aquaculture production. By 2020, aquaculture is expected to contribute to 41% of total fish production, a figure that is likely to continue to increase. The introduction of Nile tilapia into the Philippines has already seen production increases</p>	
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World Fish

		<p>of almost 200% with decreased production costs. Still, there is more work to be done.</p> <p>Food Security - Aquaculture</p> <p>WorldFish in collaboration with SEARCA is providing technical support to the aquaculture development component of FPAVAS through the Food Security – Aquaculture project. Working with partners, particularly the Local Government Units, the project aims to further increase aquaculture yield through the provision of expertise on the development of appropriate aquaculture and mariculture technologies (mariculture is a specialized branch of aquaculture that is undertaken only in marine environments) in the coastal regions and inland waters of each of the six provinces.</p> <p>Key project activities include the rehabilitation of hatcheries for the production of fingerlings, the acquisition of postharvest facilities and equipment, and the provision of training for aquaculture and mariculture technologies.</p> <p>Poverty reduction and an improved economy</p> <p>At the project’s conclusion, it is projected that aquaculture and mariculture in each of the six provinces will be more sustainable; the supply of tilapia and fingerlings will be more dependable; new fishery products (such as milkfish and ulang) will be available through the use of marine cages; and there will be a greater understanding of the</p>	
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World Fish

		<p>extent to which this industry contributes to fishers' income and livelihoods.</p> <p>The overarching vision is a Philippine aquaculture industry that is pro-poor, responsible, globally competitive, sustainable, productive, profitable and equitable. With the support of this project, and with adequate and sustained investment, Philippine aquaculture can achieve this vision and make a significant contribution to poverty reduction and the development of the national economy.</p>	
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World Wildlife Fund

Country	Project	Time Frame	Description	Subject Category
Australia	Working with coca-Cola to Improve the Sustainability fo Agricultural Ingredients		<p>Together, WWF and Coca-Cola have piloted projects on sustainable sugarcane cultivation in Australia, Brazil, South Africa and Honduras working with sugarcane farmers to align their practices with the Bonsucro Standard. In Australia, WWF and Coca-Cola continue to work with sugarcane growers to improve their farming practices. To date, growers have improved the water quality of more than 26 billion gallons of runoff and drainage water. These efforts have reduced over 183 metric of fertilizer and herbicide run-off from polluting the Great Barrier Reef.</p> <p>Like sugarcane, the production of oranges and corn can have large impacts on freshwater ecosystems. Together, WWF and Coca-Cola are engaging producers to adopt better management practices that will measurably reduce the impacts of production. These efforts will further reduce the environmental impacts of Coca-Cola’s supply chain while helping to conserve some of WWF’s priority ecoregions.</p>	agricultural productivity enhancements ; human capacity development; increased capacity of agriculture systems to adapt to climate change
United States and Russia	Protecting Salmon in Western Alaska and eastern Russia	2009-2011	<p>Among indigenous communities of Western Alaska and Eastern Russia, Chinook and chum salmon are essential elements of nutritional, cultural and economic life. Salmon are also essential to bears, eagles and for nutrient transport from the ocean to the banks of rivers. WWF works with indigenous communities to ensure these salmon remain abundant in the Bering Sea for subsistence, recreational and commercial harvest.</p> <p>Chinook and chum salmon are increasingly at risk. Some salmon runs have been depleted so greatly that subsistence users cannot harvest enough fish to sustain themselves and their families through the year. One source of depletion is industrial fisheries, which kill salmon they accidentally catch in the hunt for other fish, a practice called bycatch.</p> <p>In 2005 alone, more than 700,000 unwanted chum salmon were pulled in and discarded by the industrial Bering Sea Pollock fishery.</p>	human capacity building;

World Wildlife Fund

		<p>This wasteful practice robs local communities of an essential food source, impacting their socio-economic and cultural life.</p> <p>In 2009, WWF and partners testified before the North Pacific Fishery Management Council about the hardship to indigenous people and the environmental damage caused by the lack of effective bycatch regulation. In 2010 and 2011, WWF facilitated public input to Council decisions regarding bycatch limits.</p> <p>WWF recognizes that indigenous communities play a critical role in securing acceptable bycatch limits. To help them, we provide training on federal fisheries management issues.</p> <p>WWF and partners also trained more than 25 tribal and village leaders and residents from Western Alaska in May 2011. The participants learned:</p> <ul style="list-style-type: none">-the wider regional importance of chum salmon-damage caused by bycatch-how to provide effective public comments to the Council-With this knowledge, the regional tribal leaders are now able to more assertively protect the needs of their people and the wildlife on which they depend.	
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ACDI/VOCA	acdivoca.org				Indonesia Agribusiness Marketing and Support Activity (AMARTA) II To enable Indonesian high-value agriculture to fully meet its potential in providing improved incomes, employment, and nutrition, ACDI/VOCA is implementing the five-year, \$15 million USAID-funded Agribusiness Marketing and Support Activity (AMARTA) II		Vietnam Sustainable Cocoa for Farmers The USAID-funded Viet Nam Sustainable Cocoa for Farmers project is a 30-month initiative that builds on the achievements of the SUCCESS Alliance project and seeks to improve the economic well-being of Vietnamese smallholder farmers through the growth of a socially,						Peru Strengthening the Coffee Value Chain (SCVC) ACDI/VOCA has won a \$3.6 million, 32-month Peru Strengthening the Coffee Value Chain (SCVC) project funded by USAID. Around the world, ACDI/VOCA's team works with partners throughout the coffee value chain to address constraints and connect smallholders to elite markets.	

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					project.AMART A II uses a value chain approach to facilitate private sector-driven interventions to improve competitiveness of the horticulture, coffee and cocoa sectors. The project will link upgrading—responding to new market opportunities by innovating and increasing value-adding opportunities in the target sectors—to longer-term financing,		economically and environmentally sustainable cocoa industry in Viet Nam. (DARD), will work with cocoa farmers, nursery owners and fermentary operators in eight districts in the Dak Lak and Lam Dong provinces to 1) increase the volume of sustainably produced cocoa in Viet Nam, 2) ensure quality at all levels of the cocoa value chain and 3) transfer the						In Peru, ACDI/VOCA will work to address the major weaknesses in the country's coffee value chain that prevent the country and its smallholder farmers from reaching their full potential. The project will enhance productivity and production, improve farmer access to new and profitable markets, increase technical and management	
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					targeting financial innovations to meet the needs of smallholder farmers through traditional and innovative platforms including mobile money and other ICT-based solutions. Philippines CoCoPal Program In 2009, ACDI/VOCA was awarded a \$6.6 million project by USDA. Through the project, ACDI/VOCA monetized		cocoa development approach to local institutions by enhancing capacity. The project's activities will work with all cocoa value-chain actors and include farmer training on good agricultural practices and post-harvest handling, cocoa nursery support and increasing farmers' access to high quality cocoa seedlings, the establishment						capacity of Peruvian coffee institutions	
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					13,200 MT of soybean meal and will use the proceeds over a four-year period to improve the capacity of smallholder farmers in targeted Mindanao provinces. The program will help the farmers produce food and income sustainably, increasing food security. The CoCoPal project will improve the incomes and food security of 25,000		of Business Service Centers, and partnering with local organizations and institutions to strengthen the quality of Vietnamese cocoa. Russia North Caucasus Agricultural Development Project ACDI/VOCA won a \$7 million, four-year North Caucasus Agricultural Development Project (ADP), funded by USAID, to							
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					farmers and 125,000 indirect beneficiaries. Through six components, the CoCoPal project will also improve post-harvest processing facilities, and practices and standards for cocoa, coconut and rice production. -Russia North Caucasus Agricultural Development Project		strengthen agricultural value chains to reduce poverty and mitigate conflict.ACDI/VOCA takes a value chain approach to its development work as a proven strategy to jumpstart economic growth and poverty reduction. In the North Caucasus program, ACDI/VOCA's technical experts addressed production, processing and marketing							
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							constraints to increase the economic viability of 12 key value chains.As part of USAID's North Caucasus conflict mitigation strategy, the program benefited more than 200,000 economically vulnerable people, including unemployed agricultural workers, youth and women, who otherwise may have been drawn into criminal							
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							economic activities.							
Agricultural Market Information System (AMIS)	amis-outlook.org/													
Asian Development Bank (ADB)	adb.org/						ACDI/VOCA and its local partner, the Department of Agriculture & Rural Development (DARD), will work with cocoa farmers, nursery owners and fermentary operators in eight districts in the Dak Lak and Lam Dong provinces to 1) increase the volume of sustainably							

Organization Name	Website	Notes	Research (Policy, Agriculture Statistics, etc)	Innovative Agriculture Research	Agriculture Productivity Enhancements	Post Harvest Loss Reduction	Human Capacity Development	Improved Farmer Access to Capital Finance and Risk Management In	Improved Access to Regional and Global Markets	Increased Capacity of Agriculture Systems to Adapt to Climate Ch	Funding for Agricultural Research	Technology Dissemination	Supply Chains	Infrastructure Development
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							produced cocoa in Viet Nam, 2) ensure quality at all levels of the cocoa value chain and 3) transfer the cocoa development approach to local institutions by enhancing capacity. The project's activities will work with all cocoa value-chain actors and include farmer training on good agricultural practices and post-harvest handling,							
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							cocoa nursery support and increasing farmers' access to high quality cocoa seedlings, the establishment of Business Service Centers, and partnering with local organizations and institutions to strengthen the quality of Vietnamese cocoa.							
Bill and Melinda Gates Foundation - Mostly focuses on South Asia and	gatesfoundation.org										An ambitious project to re-engineer photosynthesis in rice, led by the International Rice Research			

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				<p>enhances crop herbicide tolerance and facilitates the use of more environmentally sustainable farming practices. Biotech is helping to feed the world by:Generating higher crop yields with fewer inputs;Lowering volumes of agricultural chemicals required by crops-limiting the run-off of these products into the environment;Using biotech crops that</p>										
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				need fewer applications of pesticides and that allow farmers to reduce tilling farmland;Developing crops with enhanced nutrition profiles that solve vitamin and nutrient deficiencies;Producing foods free of allergens and toxins such as mycotoxin; andImproving food and crop oil content to help improve cardiovascular health.										
Food and Agriculture Organization			The Agricultural Market		Bioenergy and Food Security Project for		FAO Investment Center			May 2012 FAO/World Bank Expert				

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(FAO)			Information System (AMIS) is a G20 initiative to enhance food market transparency and encourage coordination of policy action in response to market uncertainty. The initial focus of AMIS is on four grains that are particularly impo		ASEAN Starting June 2012-2014, FAO contribution \$488,000. FAO has developed the Bioenergy and Food Security (BEFS) Analytical Framework to assist policy makers manage the trade-offs associated with bioenergy development and avoid competition between bioenergy and food security. This project aims to meet this request by formulating		Vietnam (USD 1 billion in total investments.U SD 659 billion of that in loans/credits/g rants through the World Bank, IFAD, GEF bilateral donors (Finland, Germany, Japan, Luxembourg, the Netherlands, and others)) Current in-country work includes efforts to further extend poverty reduction and rural development,			Meeting on "Investing in agriculture and natural resources management in the context of climate change in East Asia and Pacific"Experts from FAO, USAID, IRRI and the Regional Integrated Multi-Hazard Early Warning System (RIM				
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				regional and national BEFS mainstreaming strategies in ASEAN to ensure that bioenergy provides more effective energy services in AMS with minimal or no impact on food security and the environment. FAO Investment Center Peru. The Investment Centre is also working on a project to provide financial and technical support to			and emergency response strategies. The Investment Centre, together with colleagues in FAO's Animal Production and Health Division, is participating in the implementation of a project to help the country's poultry sector recover and better cope with disease outbreaks. Viet Nam is prone to natural disasters, especially flooding and storms, which							
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				<p>rural businesses in the Peruvian highlands. The project is focused on building productive public-private partnerships. In a similar vein, the Investment Centre has lent support to a programme to increase competitiveness and innovation in Peru's agricultural sector. Programmes & projects currently in operation</p> <p>USD 112 million</p>			<p>frequently threaten its agricultural resources. The Investment Centre is supervising efforts to help Viet Nam strengthen its natural disaster prevention, preparedness, mitigation and recovery measures. To help lift rural populations out of poverty, the Government is targeting the poorest communities in remote and mountainous regions, where</p>							
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					70 million of that in loans/credits/grants from the World Bank/International Development Fund, IFAD, GEF and bilateral donors (Finland, Germany, the Netherlands and the Spanish Agency for International Cooperation)		the majority of Viet Nam's ethnic minorities reside.							
Global Agriculture Development Initiative (Chicago Council on Global Affairs)	thechicagocouncil.org		Global Agricultural Development Initiative provides research and analysis on agriculture								The Chicago Council on Global Affairs' Global Agricultural Development Initiative aims to inform the			

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			and development. The Chicago Council Food Security Symposium met on May 21, where leaders convened in Washington, DC to urge US leadership in capitalizing on the power								development of U.S. policy on global agricultural development and food security by raising awareness and providing resources, information, and policy analysis to the U.S. Administration, Congress, and interested experts and organizations. The Global Agricultural Development Initiative is housed within The Chicago Council on Global Affairs,			

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Global	globabharvesti		GHI is a								a leading independent, nonpartisan organization committed to influencing the discourse on global issues through contributions to opinion and policy formation, leadership dialogue, and public learning.Support for the Global Agricultural Development Initiative is generously provided by The Bill & Melinda Gates Foundation.			

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					<p>million rural producers. Resources will be used to strengthen food safety, to generate and transfer farming and forestry technological innovations, expand the capacity for marine and fisheries research, and achieve greater efficiency, quality and transparency in the support and services provided to producers. The loan is for a 25-year term,</p>									
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			to date, including country-level initiatives in Mexico, Vietnam, Indonesia, and India, as well as a regional partnership platform called Grow Africa which engages seven countries. At the											
World Farmers Organization (WFO)	www.worldfarmersorganisation.com/			Policy Papers on Food Security: WFO Recommendations for Eliminating Rural Poverty and Achieving Food Security				Women in Agriculture- Women are shaping the rural economy in developing countries- they contribute as farmers, laborers, and						

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		world since the beginning of this century by joining forces with other global companies, including the large players, to analyze and find solutions through the Food	encourage the participation of the private sector and to achieve better coordination among all interes											
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		<p>and Nutrition Security Group of the B20*. The recommendations of the Food and Nutrition Security Group have as a common goal to encourage the particip</p>												
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		WFP coordinate access to equipment and dealers across the world during emergencies. Caterpillar has helped to set up logistics hubs and mobile storage units in places like Ethiopi												
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		<p>a, which are proving vital to the transportation of food and relief items in the area. In addition to access to equipment and improving logistics, Caterpillar has donated to</p>												
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		WFP school meals projects in Haiti. These donations have helped WFP to expand projects and provide 500,000 children with meals during term time as well as take home rations for												
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		<p>their families . School meals programmes can double primary school enrolment and improve student health and learning abilities .Thanks to Caterpillar's ongoing support</p>												
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		of more than 150 international and national agriculture organizations, Elanco assumes a collaborative approach to addressing food policy issues. Elanco supports												
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		<p>organiza tions workin g within the global food chain, such as the Interna tional Dairy Foods Associa tion and the U.S.-AS EAN Busines s Council . Elanco also support s the 4-H</p>												
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		Foundation and other organizations that help prepare the next generation of farmers, livestock producers and veterinarians by nurturing skills and promoting respons												
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		ible agricultural practices.												
Hersheys	http://www.thehersheycompany.com/				Launching the Mexico Cocoa Project, a 10-year, \$2.8 million initiative through partners to reintroduce cocoa growing in southern Mexico and help restore the country's beleaguered cocoa farming industry					Helps on issues related to farming, such as soil health, pesticide use, deforestation and biodiversity; issues related to the sourcing of sustainable palm oil and forestry product management; and third-party certification of agricultural and forestry				
John Deere	www.deere.com	John Deere has several					John Deere supports the Foods Resource Bank	Helps support Opportunity International which is						

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		<p>food security projects with a primary focus on African countries. They have initiatives that focus on philanthropy, education, world hunger, and community betterment.</p>					<p>(FRB).Here's how FRB works: In the U.S., community "growing projects" raise a crop or other marketable agricultural resources. The proceeds are given to 15 FRB member organizations worldwide. They, in turn, help support individuals or small groups wishing to establish small commercial farming operations or other ag-based businesses. Many of these</p>	<p>dedicated to helping the working poor. The organization provides small loans to entrepreneurs so they can start or expand a business, develop a steady income, provide for their families and create jobs for</p>						
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							<p>farms or businesses work in some of the world's poorest areas. And their goals are simple: produce enough to support an entire community; produce extra food to share; barter or sell food to purchase basic medicines and staples; send all children to school. Through this work, individuals and their communities can ultimately become</p>							
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							<p>self-sufficient and food-secure. The Human Needs and Global Resources (HNGR) program was founded at Wheaton College (Wheaton, Illinois) in 1976. The program helps students confront the challenges faced by people in developing regions of the world. These challenges include: poverty, hunger,</p>							
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							<p>exclusion, underdevelopment, conflict, injustice, ecological disasters, and major health concerns. HNGR combines classroom study with field-based internships. Students learn to help people live whole, secure, productive lives. Since the program began, more than 600 students have participated in HNGR internships in 63 countries</p>							
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		of their production sites, supply chains, etc. There is some focus on agricultural climate change methods and enhancing Mars product line and corporate social responsibility												
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		report can be found here: http://www.yumcsr.com/food/												
S. Daniel Abraham Chair in Nutrition Medicine, Harvard Medical School	http://nutrition.med.harvard.edu/personnel/personnel_bio.html	Doctors that work in nutrition												
Agriculture for Impact, Imperial College London	http://www3.imperial.ac.uk/africanagriculturaldevelopment	Has developed several articles and publications on food security and	Produces country reports on the issues that impeded a state's right to food - makes policy recommendations. They				The Montpellier Panel - The Montpellier Panel is a panel of international experts from the fields of agriculture, sustainable							

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		agriculture, but primary regional focus is in Africa. Link to Staff: http://www3.imperial.ac.uk/africanagriculturaldevelopment/about	look at several different subject areas such as production and resources (agroecology, land rights, seeds, biofuels, climate change, fisheries)				development, trade, policy, and global development chaired by Sir Gordon Conway of Imperial College London. The Panel is working together to make recommendations to enable better European government support of national and regional agricultural development and food security priorities in Sub-Saharan							
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		campus of Iowa State University created to identify and reduce negative environmental and social impacts of farming and develop new ways to farm profitably while conserv												
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		ing natural resources. The Center's work is focused in these initiatives - ecological systems research, marketing and food systems research, policy research and												
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		ic unit originally founded in the 1920s. Today, in recognition of the fundamental importance of food and nutrition to human life and pleasure; the growing demand for knowle												
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		<p>deable, skilled public health professionals, nutritionists, food managers, and food professionals, the department now trains students for a wide range of careers related to the</p>												
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		<p>role of food, nutrition, and health in modern society, culture, and businesses — domestically and internationally .The Department's innovative mission is to educate students,</p>												
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		<p>professionals, and the public about the role of food, nutrition, and health in all aspects of life. Department programs apply and integrate this information through undergraduate,</p>												
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		master's, or doctoral degree programs in four distinct but related areas of study: Nutrition and Dietetics, Food Studies, Food and Restaurant Management, and Public Health.												
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			resourcing a											
National Health Commission Office of Thailand	www.nationalhealth.or.th	focuses on health issues in Thailand.												
Division on Earth & Life Studies, National Academy of Sciences	http://dels.nas.edu/	Robin Schoen - rschoen@nas.edu					The Board on Agriculture and Natural Resources is proposing to organize a two-day meeting to convene leading thinkers from the public and private sector to consider how the historic research, education, and extension							

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							<p>mission of land-grant and other universities can align more effectively with contemporary societal challenges in agriculture, food, and natural resources (AFNR), both domestically and globally. Positioning the land-grant universities to address the complexity of issues, such as the global food challenge, is a big opportunity that cannot be achieved</p>							
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							<p>without changes in the supporting infrastructure for education, research, and extension activities. Among the possible requirements for success of this vision are foremost, the creation of a communal ownership of a vision for the land-grant institutions by a partnership of universities, businesses, federal and state governments, and philanthropic</p>							
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							<p>organizations; and secondly, the development of trans-disciplinary and geographic networks to create broader understanding of the systems challenges in AFNR. In addition, changes in institutional priorities that recognize the value of a trans-disciplinary environment are needed along with enhanced funding to support the</p>							
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							<p>larger team efforts that will be essential to employ the full complement of disciplines and converging technologies. The workshop will build on a 2012 National Research Council report, Research Universities and the Future of America: Ten Breakthrough Actions Vital to Our Nations' Prosperity and Security. The workshop is intended to be provocative, interactive,</p>							
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							<p>and results-oriented. Its main goals are: 1) to clearly identify the major opportunities around the AFNR issues that could (or should) be addressed by land-grant and other institutions; 2) to identify the infrastructure and changes needed to grasp those opportunities and 3) to launch a plan of action for taking initial and subsequent steps to</p>							
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							<p>position the land-grant universities in a leadership role on these issues. BANR proposes to convene a series of workshops under the framework of a consensus study to examine available data on students trained in the United States in various disciplines relevant to agriculture, assess information on agricultural workforce needs of</p>							
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		meet the same rigorous standards for safety and quality as those products manufactured domestically. This is a formidable task, requiring FDA to assess millions of												
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		<p>products grown, harvested, processed, manufactured, packaged, labeled, and shipped from outside U.S. borders. In 2009 alone, \$2 trillion worth of FDA-regulated product</p>												
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		<p>s manufactured in more than 300,000 foreign facilities entered the United States from more than 150 countries. While the FDA partners works with several organiz</p>												
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		<p>ations that promote food security, the FDA's main focus stems from food safety. A report of their current food safety global initiatives can be found here: http://www.fda.gov/</p>												
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		<p>technical problems relating to the Industry. To conduct, promote and finance market research/market studies in India and abroad on processed food products. To render technical</p>												
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		al, social and financial help to families of disabled or deceased technical consultants, scientists, food technologists, experts in agriculture, horticulture, marketing etc.												
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		as related to Food Processing Industry.To institute Awards and Scholarships to encourage scientists, food technologists, administrators, consultants and executives who help in												
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		the growth and development of the Food Processing Industry.To publish a bimonthly Journal i.e. "Indian Food Packer" as a non-profit activity, which aims to keep the												
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		to Americans struggling with hunger; safe and nurturing places for children to have a meal; emergency assistance for disaster victims; as well as a chance at self-sufficiency												
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		for adults trying to break the cycle of poverty and hunger. Does not have any food security projects.												
Global Alliance for Improved Nutrition		GAIN focuses on eliminating malnutrition through strategic	Various participation in food and nutrition security conferences - one of them being the 6th International						GAIM's partnership with Amsterdam Initiative against Malnutrition and various other stakeholders					

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		and industrial farming, and school food. Pew addresses a variety of threats from the nation's food supply and to the healthfulness of what kids eat at school. Their project												
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		s advanc e science -based policies based on solid research that seek to limit the impact of foodbo rne illnesse s, improv e the nutritio nal quality and safety of food sold												
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		and served in U.S. schools , curb the overuse of antibiotics on industrial farms, and assess the risks associated with chemicals added to food and its packaging.												
International		In	Understandi	The ILSI			Building Local							

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Life Sciences Institute		agriculture, modern biotechnology has been increasingly able to achieve plant characteristics long sought through traditional breeding: pest and disease resistance; increased	ng Natural Variability – Crop Composition Database: IFBiC created and maintains the Crop Composition Database (CCDB); a high quality, comprehensive and easy-to-use tool that provides data to assess the composition al equivalence of new crop vari	Research Foundation Center for Environmental Risk Assessment (CERA) improves underlying risk assessment science while delivering the most up-to-date information and state-of-the-art tools to risk managers who make the decisions that keep their publics safe and healthy. Recognizing that global agricultural			Capacity - Outreach and TrainingThe World Bank, the OECD, WHO, and other international bodies have advocated the implementation of harmonized guidelines for assessing the safety of food and feed derived from biotechnology. Their common objective has been setting shared standards, procedures, and methods for conducting safety							
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		yield; better tolerance of environmental stresses (e.g., drought); and improved nutrition. These potential benefits and others offered are always considered in relation to possible		systems are interconnected, the center fosters recognition of the importance for the use of harmonized approaches to ERA to realize both cost-saving efficiencies and provide consistency of biosafety across regions. In 2012, the World Bank recognized CERA's expertise and organizational capabilities with a grant of US\$1.4 million to establish			assessments across international borders to maintain the integrity and availability of the food supply for all people. The ILSI International Food Biotechnology Committee (IFBiC) – working in close cooperation with ILSI branches at the national and regional level – has been an outstanding resource for education and technical							
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		<p>e effects on human health and the environment. Given the international flow of agricultural products, ILSI's biotechnology programs provide many stakeholders—international health</p>		<p>The Partnership for Biosafety Risk Assessment and Regulation. This collaborative effort, led by CERA and OECD, will strengthen multilateral efforts to harmonize the regulation of genetically modified crops to ensure the adoption of these crops is as environmentally-sound as it is efficient. The website can be found here: http://cera-gm</p>			<p>training. Its outreach program provides capacity building for governments and local organizations by instilling an understanding of the scientific principles underlying safety assessment. IFBiC's efforts have created a cadre of people who now serve as local and regional science and technical resources.</p>							
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		<p>organizations, national governments, consumer groups, industry—with the scientific information needed to evaluate the safety and benefit of biotechnology-derived product</p>		c.org/									
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		n in the community, in support of the Government efforts to combat the increase in diet-related chronic diseases in the country (eg obesity, diabetes, coronary heart disease, hyperten												
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		<p>nsion and certain cancers). Advance nutrition science among the Society's members.How ever, NSM's efforts have been somewhat limited to traditional activitie</p>												
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		s (eg occasional community services, occasional promotional activities and ad hoc educational projects in the mass media). Constraining factors mainly include d: A shortage of												
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		human resources, particularly qualified local nutritionists and dietitians; Lack of funds to conduct continuous activities capable of reaching out to larger audiences;												
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		<p>With its speed, flexibility and easy accessibility, the Internet clearly presents a viable tool enabling NSM to more effectively meet its objectives for the nation. There is present</p>												
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		ly no website providing local nutrition information appropriate for Malaysians. Thus NSM is in the best position to fill the void by hosting such an electronic platform. The Society												
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		<p>has access to the required expertise and information. Furthermore, it is a neutral body with no vested interest.</p> <p>Project Objectives for NutriWeb Empower the public to make</p>												
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		<p>wisier choices in the selection and preparation of foods for themselves and their families by providing: Easy access to authoritative nutrition information An avenue to interact</p>												
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		with selected nutritionists at any time and any place, as long as they have an internet account. Facilitate more effective communication among nutritionists and related												
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		health professionals as well as the academic and research community by providing:An avenue to exchange viewsContent advocating the professionInformation on advances in nutritio												
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		<p>n science within the country and globally Highlight career enhancement programmes and benefitsElectronic access to publicationsFaster access to information on scientifici</p>												
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		<p>c events within and outside the country Promote greater awareness of trends in healthy food processing and to improve food handling/hygiene among food producers and</p>												
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		<p>operators. Provide the media with access to the right information for dissemination to the public, thereby contributing to the promotion of healthy eating in a responsible manner.</p>												
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Agriculture and Food Sciences, Food Security Focal Area		academic articles produced by the School of Agriculture: http://espace.library.uq.edu.au/list?q=quick_filer&search_keys%5B%5D=is_member%3AUQ:240731&search_keys[core_8]=UQ	t of national food plan: http://www.uq.edu.au/agriculture/docs/Aus_Govt_Food_Plan_2011.pdf Australia produces much more food than it consumes, including almost all of its own fresh food, however as the population increases	within the School is agricultural food value chain innovation (VCI). This uses value chain analysis as a framework for economic, environmental and social development. The research scale extends from examining individual firms within chains, to whole of sector policy.										

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		ent=Community_Welfare&Corporate=Y												
Business Compass Consultancy (Asia Pacific)	http://www.compass.com.sg/	No information on Website.												
ASEAN Secretariat	Survey Results													
New England Aquarium	http://www.neaq.org/conservation_and_research/projects/fisheries_bycatch_aquaculture/index.php	Tania Tarano Sustainable Seafood Programs Manager 617-226-2233		Aquaculture Research: Nationwide, the demand for seafood is increasing. As many wild-caught fisheries decline due to population collapses and environmental damages, the expansion of			Aquatic Forum Series: The Aquatic Forum Series helps facilitate the identification, analysis and resolution of aquatic conservation problems by bringing together multiple stakeholders			Sustainable Seafood Advisory Services: The New England Aquarium works with some of the world's largest seafood retailers and suppliers to encourage the sustainable development				

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				U.S. aquaculture is inevitable. Our aquaculture program is helping the industry develop in a sustainable manner by addressing common problems, investigating new technologies and bringing stakeholders together to reach common ground and work toward jointly derived goals. Best Management Practices and StandardsBest management			for consensus-building discussions of key issues affecting our aquatic environment.F orums to date include:Establishing an Agenda for Responsible FishingExploring Transboundary Arrangements for Management of the Gulf of Maine Ecosystem: Focus on Sewage, Toxics and Coastal DevelopmentF urthering the Establishment			of farmed and wild-caught seafood resources. The Aquarium advises these compani				
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				plans and standards are methods to assure that operations comply with predefined goals. These methods are typically used to assure that environmental impacts are limited, although they may also include social and economic aspects. The development of BMPs and Standards is a rapidly growing area of aquaculture management.C onsensus BuildingIn an			of an Electronic Environmental Information Exchange for theGulf of MaineHerring Stock Assessment and Research PrioritiesIntegrating Marine Conservation in the Indian Ocean: 1996 and BeyondLobster Summit I Lobster Summit II Lobster Summit III Marine Animal Telemetry TagsNew England Fisheries:							
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				industry as large and complex as commercial aquaculture, consensus building can often be one of the largest hurdles to overcome. We listen to and mediate between the public, environmental groups, local, federal, and state governments, the seafood industry and the scientific community. By working collaboratively, we help develop			Planning for the FutureNon-Fish Nekton WorkshopOut of the Fog: Information Sharing in the Gulf of MainePinniped Populations in the Gulf of Maine: Status, Issues and ManagementPinniped Populations, Eastern North Pacific: Status, Issues and TrendsPonds, Lakes and Streams: Emerging Issues in Water Quality							
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				<p>management plans that address all concerns. We sponsored a workshop in January 2001 to clarify the barriers and address the challenges facing the development of sustainable marine aquaculture. The conference focused on four areas: Impacts on habitats Interactions between cultured and wild species Mechanisms for building</p>										
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		<p>ve is to underst and the scope and impact of plastic debris in the global marine ecosystem and potential effects on human health. We conduct research voyages to collect</p>												
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		<p>samples from around the world. Back in the lab, we study the distribution and fate of plastic debris in the marine environment, and are working to understand its impact on marine</p>												
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		<p>mammals, seabirds, and fish. We are further concerned about the possible transference of toxic contaminants from plastic to marine life, and what, short - and long-te</p>												
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		rm implications there are for human health.												
Council of Agriculture, Chinese Taipei	http://eng.coa.gov.tw/suggest.php			The “Research Teams for the Ten Major Agricultural Industries” have continued to conduct research for advancing the development of these industries toward high efficiency and high quality. The goals are to double production acreage, production	The Small Landlords and Big Tenant-Farmer’s Program: The Council of Agriculture’s (COA) Small Landlords and Big Tenant-Farmer’s Program is dedicated to revitalizing the nation’s farming sector. It started in May 2009, the program purpose mainly assists		Rural regeneration The Rural Regeneration Act was promulgated by the president on August 4, 2010. The COA, besides setting to work immediately to research and draft bylaws required by the Act, has also undertaken an information campaign so			Appropriate use of agrochemicals Another part of ensuring food safety is seeing that agro-pesticides are neither lacking when needed, nor abused when not needed. To this end, the COA, taking into consideration scientific principles and the effectiveness	Industrialization of science and technology The COA has continued to promote agricultural science parks, with the aim of making Taiwan an Asia-Pacific center for agricultural biotechnology and subtropical floriculture. The PingtungAgricultural Biotechnology	Application of information technology to agriculture The COA has promoted the adoption by private		

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				value and export value. Facing the challenge of climate change, the COA has also been integrating and strengthening technologies for monitoring, assessment, and adaptation to assist agrobusinesses in upgrading their capacity to cope with adverse conditions. Main R&D achievements in 2010 included: (a) Increasing agricultural production	old farmers in renting out their fallow lands to younger farmers or agricultural cooperatives, thus effectively guaranteeing a viable income for retired farmers while ensuring the continuation of the farming of the land. Through the revitalization of fallow lands and economic-scaled farming, higher agricultural output and more employment		that government agencies, rural communities, and citizens can fully understand the content of this law. At the same time we have created a comprehensive implementation mechanism, including training at the local community level, surveys of assets and resources, and assistance to rural communities in drafting concrete programs for rural				Park has approved investments by 58 firms, totaling NT\$3.55 billion. Of these firms, 43 have started operations. In addition, an R&D center has been established for breeding and export of ornamental fish and fish fry for aquaculture. Infrastructure work has been completed on Phases 1, 2, and 3 of the Taiwan Orchid Biotechnology Park in Tainan.	firms of RFID technology in the management of stud farms for cattle, goats, and deer, which should reduce management and manpower costs.		

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				safety through the development and manufacture of dry pellets for melon fruit fly control and polyvalent inactivated bacteria against Riemerella anatipestifer infection; (b) Raising production efficiency through technological developments such as sugar-apple lighting treatments and tea crawler-pruning machines; (c)	opportunities will both follow, the Council pointed out.The program encourages elderly farm owners to loan their farmland to the Farmland Bank, a network run by the local farmers' association that will help broker rental deals between elderly farmers and new tenant farmers. Not only will the program help match		regeneration. Thus far we have held 1013 meetings, involving 129,803 people, to explain the law. We have also laid out plans for rural regeneration for ten districts, done 256 projects for rural community construction, undertaken 238 cases of improvement of the basic environment in rural areas, and given 28,115 person-session s of training for				Fifty firms have already received approval to move into the park, which is 100% occupancy of available land. Of these, 33 firms have already begun production. In Changhua County, the National Flower Park special zone for ornamental seedlings and trees has 23 firms that have begun operations, for an occupancy rate of 78%. Under the “Regulations	The COA has also in		
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				Promoting emerging industries, such as turn-key solutions for mass production of Babylonia areolata; (d) Breeding new varieties to increase competitiveness, including egg-laying Brown Tsaiya Ducks, paddy rice, lettuce, chrysanthemums, statice lavender, and daylily; (e) Developing mass production techniques to add economic	beginner farmers with suitable land, the Council also has a series of complementary packages tailored to facilitate success by alleviating financial stress, transferring agricultural technology and exchanging farming experience for the young farmers. Upgrading of the farm, fisheries, and livestock industries The COA has provided		rural regeneration in 524 communities. In addition, the COA has launched a program to instruct people in the work of regeneration of fishing communities. We have so far held 49 classes involving 2,489 people, and have assisted fishing communities in creating regeneration infrastructure plans in nine locations. As of the end of December of 2010, 1,212				for the Promotion of Agricultural Private Enterprise Engaging in Research and Development,” eight industrial S&T projects were approved, making a total of 27 such projects from 2007 to 2010, with private agribusinesses contributing NT\$108 million in R&D funding.			

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				value, such as new technology for mass production of a vaccine for silkworms infected with the Bombyx mori nuclear polyhedrosis virus (BmNPV), Camptothecin production from Nothapodytes nimmoniana with hairy root culture by bioreactor, and extraction of the components of fruiting bodies of the medical fungus Antrodia cinnamomea;	guidance to growers undertaking contract production for industry on 848 hectares of superior grains and 250 hectares of medicinal crops for health uses; guided 137 tea production and marketing groups, covering 1,660 hectares, to participate in factory-farm cooperation and tea plantation health management; promoted the establishment		communities or neighborhoods had participated in training, for a total of 63,622 person-sessions. Training has reached one-fourth of all rural communities, allowing for comprehensive promotion of rural regeneration.							
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					<p>ponds, set up a liquefied natural gas cooling system for the comprehensive supply of seawater, promoted saltwater aquaculture, and promoted the transformation and upgrading of the aquaculture industry. We have also promoted the raising of ornamental fish as a major new export, held one exhibition for the ornamental-fis</p>									
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					<p>h industry, and participated in four international exhibits of marine pets in 2010, with the aim of raising the industry's international competitiveness. The COA has set up a guidance and information system for hog production, raising management efficiency by more than 5%; completed screening for genetic markers of porcine stress syndrome, meat quality,</p>									
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Organization Name	Website	Notes	Research (Policy, Agriculture Statistics, etc)	Innovative Agriculture Research	Agriculture Productivity Enhancements	Post Harvest Loss Reduction	Human Capacity Development	Improved Farmer Access to Capital Finance and Risk Management In	Improved Access to Regional and Global Markets	Increased Capacity of Agriculture Systems to Adapt to Climate Ch	Funding for Agricultural Research	Technology Dissemination	Supply Chains	Infrastructure Development
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					<p>and lean mass in 4167 blood samples obtained from stocks of pig breeding farms; provided guidance to introduce labeling for superior-quality dairy products; guided private operators in setting up 60 new-style sealed negative-pressure environmentally controlled poultry barns; and promoted a contract model for raising poultry</p>									
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					that now reaches over 90% of broiler chickens and over 70% of free-range chickens and of ducks raised for their meat.									
GS1	john.keogh@gs1.org	GS1 Hong Kong has been dedicated to enhancing Hong Kong enterprises' competitiveness through the provisi		Main R&D achievements in 2010 included: (a) Increasing agricultural production safety through the development and manufacture of dry pellets for melon fruit fly control and polyvalent inactivated bacteria against									GS1 Hong Kong has been working closely with APEC on food security issues through Policy Partnership on Food Security (PPFS) initiatives. GS1 HK is working closely with the APEC Business Advisory Council to encourage the grater use of	

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		on of global supply chain standards, technology and best practices underpinned by GS1 philosophy. As GS1's local chapter, GS1 Hong Kong is the only organization who is		Riemerella anatipestifer infection; (b) Raising production efficiency through technological developments such as sugar-apple lighting treatments and tea crawler-pruning machines; (c) Promoting emerging industries, such as turn-key solutions for mass production of Babylonia areolata; (d) Breeding new varieties to									global data standards and supply chain infrastructure technologies to help enhance the competitiveness in the region through easier, cheaper and faster conduct of trade in goods and services across borders. One of the concrete steps is the enhancement of supply chain connectivity. Through the APEC Supply Chain Connectivity Framework, all member economies	
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		authorized to issue and administer GS1 System of Standards in Hong Kong. The GS1 System of Standards is a set of global standards that enable the unique identification of all		increase competitiveness, including egg-laying Brown Tsaiya Ducks, paddy rice, lettuce, chrysanthemums, statice lavender, and daylily; (e) Developing mass production techniques to add economic value, such as new technology for mass production of a vaccine for silkworms infected with the Bombyx mori nuclear polyhedrosis virus (BmNPV),									strive to achieve a 10% improvement in supply chain performance by 2015. The framework identifies eight chokepoints that business rank as highly significant to the smooth flow of goods and services throughout the APEC region. It also provides action points to address such barriers. Link: http://www.gs1hk.org/files/mktg/edm/121010_eNewsletter/pdf/01APEC	

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		trade items, processes, services, assets, companies and locations at any point in the supply chain. As a global language for efficient businesses, GS1 Standards enables		Camptothecin production from Nothapodytes nimmoniana with hairy root culture by bioreactor, and extraction of the components of fruiting bodies of the medical fungus Antrodia cinnamomea; (f) Completing certifications of laboratories and technologies to meet international standards for conducting transgenic crop testing, detecting									_en.pdf	
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Organization Name	Website	Notes	Research (Policy, Agriculture Statistics, etc)	Innovative Agriculture Research	Agriculture Productivity Enhancements	Post Harvest Loss Reduction	Human Capacity Development	Improved Farmer Access to Capital Finance and Risk Management In	Improved Access to Regional and Global Markets	Increased Capacity of Agriculture Systems to Adapt to Climate Ch	Funding for Agricultural Research	Technology Dissemination	Supply Chains	Infrastructure Development
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		<p>companies of all size to identify , capture , and share information throughout the global value chain. No matter where a business is based or what language you use,</p>		<p>viruses, and doing ecological and toxicological assessment of pesticides, for safeguarding the environment.</p>										
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Australia Stocktake

<p>Increasing Agricultural Production and Productivity</p>	<p>One of the roles of the Australian Government Department of Agriculture, Fisheries and Forestry is to enhance the productivity, competitiveness and sustainability of the agriculture, fisheries, forestry and related industries.</p> <p>For example, the Department increases agricultural productivity by investing in rural research, development and extension (RD&E). The Department provides over \$235 million annually in matching contributions to rural Research and Development corporations in Australia.</p> <p>The Department also recognises other factors impacting on agricultural productivity, such as access to an appropriately skilled workforce, and works with stakeholders to address these.</p>
<p>Enhancing Food Safety and Quality</p>	<p>The Department of Agriculture, Fisheries and Forestry works to ensure a more efficient and effective domestic food regulatory system that protects public health and safety while recognising the need for an internationally competitive food industry.</p> <p>The Department maintains a risk-based regulatory approach to food safety through a partnership between the Australian Government, state and territory governments and the New Zealand Government.</p> <p>The Department develops and maintains effective food standards that are based on the best available scientific evidence and are consistent with international standards. It also participates in the development of risk and evidence-based international food standards to promote internationally consistent management of food safety.</p> <p>The Department also develops and maintains collaborative industry and government partnerships to allow for effective response to food safety emergencies, including the efficient recall of unsafe food from the marketplace.</p>
<p>Improving Access to Food</p>	<p>On 25 May 2013, the Australian Minister for Agriculture, Fisheries and Forestry, Senator the Hon. Joe Ludwig, released Australia's first ever National Food Plan to set the direction for government policy on food over the short, medium and long term.</p> <p>The vision of the National Food Plan is a sustainable, globally competitive, resilient food supply supporting access to nutritious and affordable food.</p> <p>A copy of the National Food Plan is at: www.daff.gov.au/nationalfoodplan</p>
<p>Research and Policy Recommendations on Food Security</p>	<p>On 25 May 2013, the Australian Minister for Agriculture, Fisheries and Forestry, Senator the Hon. Joe Ludwig, released Australia's first ever National Food Plan to set the direction for government policy on food over the short, medium and long term.</p>

	<p>A copy of the National Food Plan is at: www.daff.gov.au/nationalfoodplan</p>
Effective Management of Marine Ecosystems, Fisheries, and Aquaculture	<p>The Department of Agriculture, Fisheries and Forestry's work on fisheries issues include support for scientific and economic assessments, research and development and the day-to-day management of fisheries through stock assessments, management plans and compliance programs.</p>
Increasing Farmers' Access to Markets, Market Data, and Financing	<p>The Department of Agriculture, Fisheries and Forestry works, through global, regional and bilateral trade agreements, to reduce trade barriers and negotiate market access to benefit Australia's food sector.</p>
Infrastructure Development and Supply Chain Connectivity	<p>The Department of Agriculture Fisheries and Forestry invests in infrastructure and biosecurity that supports Australia food supply chain. The majority of the investment is undertaken by the Australian Department of Infrastructure and Transport. Refer to the National Food Plan for further details.</p>
Reducing Post-Harvest Loss	<p>The Australian Government (Department of Sustainability, Environment, Water, Population and Communities) aims to reduce food waste by implementing the National Waste Policy. The policy sets Australia's approach to waste management to 2020 and includes a strategy to divert food and other organic waste from landfill to more productive uses such as compost and soil amendments.</p> <p>The Australian Government also implements community food initiatives such as providing information to educate consumers and businesses to reduce and make use of existing food waste.</p>
Mitigating Climate Change	<p>The Department of Agriculture, Fisheries and Forestry manages Australian Government policies and programs to help primary industries and producers make choices and decisions to adapt and respond to climate change.</p> <p>In recognition of Australia's variable climate, the Australian Government has been working to restructure drought assistance programs to better help farmers plan and prepare for drought rather than providing emergency assistance.</p> <p>This includes funding of \$99.4 million to support farmers and their partners when they are in hardship, as well as improved options for farm business training, support for on-farm tools and technologies and better coordinated social support services.</p>
Emergency Response to Natural Disasters and Social Unrest	<p>The Australian Government works with industry to improve the resilience of the food supply chain under the Critical Infrastructure Resilience Strategy. Refer to the National Food Plan for further details.</p>
Nutrition Security	<p>This issue falls within the responsibilities of the Australian Government Department of Health and Ageing. The Department of Health and Ageing is developing a National Nutrition Policy to guide future health and nutrition programs in Australia.</p>

Trade Facilitation	The Department of Agriculture, Fisheries and Forestry provides trade facilitation services across a diverse range of markets through our diplomatic network of agriculture counsellors.
Other (please specify)	

Canada Stocktake

<p>Increasing Agricultural Production and Productivity</p>	<p>Agriculture and Agri-Food Canada (AAFC) contributes to an economically viable sector through investments that target innovation and competitiveness and that position the sector to proactively manage risk. These actions include: creating the right business climate for innovation; encouraging collaborations on research/knowledge creation and transfer; increasing commercialization of innovation; and fostering domestic and international competitiveness through increased trade, open markets and information exchange. AAFC strives to help the sector maximize its long-term profitability and competitiveness, while respecting the environment and the safety and security of Canada's food supply. Departmental activities extend from the farmer to the consumer, from the farm to global markets, through all phases of producing, processing and marketing of agriculture and agri-food products.</p> <p>The Government of Canada directly supports many phases of the agricultural commercialization process with substantial public research and development funding, knowledge transfer, innovation programming such as grants and contributions, financing tools, as well as numerous market information and market access activities. Direct agricultural commercialization activities supported by the Government's Agriculture and Agri-Food Portfolio include, the Agri-Innovation Program under the <i>Growing Forward 2 (GF2)</i> policy framework for Canada's agricultural and agri-food sector, which includes a stream called "Enabling Commercialization and Adoption" to accelerate the pace of innovation and facilitate the commercialization and adoption of innovative products, technologies, processes and services. Key objectives of the program are to improve the productivity and competitiveness of the Canadian agriculture, agri-food and agri-based products sector and to help capture opportunities in domestic and global markets. The program supports companies and for-profit co-operatives in bringing their products, technologies ore services to the market and to adapt innovations.</p> <p>In addition, AAFC's suite of Business Risk Management (BRM) programs (AgriInvest, AgriStability, AgriInsurance, and AgriRecovery) equip producers with the tools necessary to mitigate losses associated with severe market volatility and disaster situations. Collectively these programs provide comprehensive coverage for disaster situations while at the same time promoting proactive and strategic agricultural practices that will further facilitate market-based profitability.</p>
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	<p>Outside of Canada’s borders, Canada has supported the Vietnam Agriculture Competitiveness project which supports the national government's strategy on market-oriented agricultural development. At the local level, the project aims to strengthen the competitiveness of smallholder farmers, with a focus on eight provinces in central Vietnam, in collaboration with the agribusiness sector. This project is expected to improve smallholders' access to markets through the provision of technology services and critical public infrastructure for agriculture, and by facilitating farmer organizations and linkages to agribusiness.</p> <p>In Vietnam, Canada also supports increasing agricultural productivity through the Ha Tinh Agricultural Development Project, which is providing targeted budget support to the provincial agriculture and rural development plan, including support for priority small-scale infrastructure for agriculture and rural development. This project also strengthens the capacity of partners at provincial, district and commune levels in agricultural development including planning, budgeting, financial management, procurement and monitoring.</p> <p>Within Indonesia, Canada is funding an agro-forestry project that aims to secure sustainable livelihoods for Sulawesi's smallholder farmers including women through forestry and agroforestry. It is designed to support the planting, management and marketing of more diverse and environmentally suitable tree crops.</p>
<p>Enhancing Food Safety and Quality</p>	<p>Canada provides support to APEC economies on enhancing food safety and quality through the Food and Agriculture Products Quality project in Vietnam is helping to improve the quality, safety and marketability of agriculture and food products through strengthened production, processing and quality/safety control and certification systems, according to international standards. Canada’s support is helping farmers to meet internationally recognized Good Agricultural Practices for four key agri-food products, to reduce chemical contaminants in fruit, vegetable, poultry, and pork.</p>
<p>Increasing Farmers' Access to Markets, Market Data, and Financing</p>	<p>Programming is available across Canada that provides direct support to producers for farm financial management. As part of Canada’s Economic Action Plan, the Government of Canada launched the Canadian Agricultural Loans Act (CALA) program, a financial loan guarantee program that gives Canadian farmers easier access to credit. Farmers can use these loans to establish, improve, and develop farms; while Agricultural co-</p>

	<p>operatives may also access loans to process, distribute, or market the products of farming.</p> <p>Farm Credit Canada (FCC), a Federal Financial Crown Corporation, also provides specialized business and financial services and products to family farms, farming operations and small and medium-sized businesses related to farming.</p>
<p>Infrastructure Development and Supply Chain Connectivity</p>	<p>The success of Canada's agriculture and agri-food sector depends on the effectiveness of a number of underlying basic infrastructure components, including transportation systems and water/irrigation.</p> <p>During discussions with industry and the provinces during Agriculture and Agri-food Canada's (AAFCs) Growing Forward 2 (GF2) consultation process identified infrastructure as a key driver required in order to develop a competitive, adaptive and sustainable agricultural sector.</p> <p><u>Gateway/Transportation Infrastructure:</u> AAFC plays an active role with federal partners and others through on going work with agricultural stakeholders and Transport Canada (TC) in an effort to make transporting agricultural goods more efficient and producer-friendly. For example, AAFC is facilitating a Crop Logistics Roundtable and provides agricultural intelligence to TC on its Pacific Gateway Initiatives.</p> <p>Canada also continues work to ensure that the 2007 Infrastructure Canada (IC) Seven-year Building Canada Plan reflects the infrastructure and transportation requirements needed to support the long-term economic growth of Canada's agriculture and agri-food sector, including participation in discussions concerning the \$8.8 billion Building Canada Fund.</p> <p><u>CURRENT PROGRAMMING / ACTIVITIES AND IDENTIFIED GAPS</u></p> <p>The Canadian government has made helpful investments over the past several years. The Building Canada Fund, the Green Infrastructure Fund, the Gas Tax Fund and the infrastructure stimulus under Canada's Economic Action Plan are all examples. The federal government has also made the annual \$2-billion gas tax contribution to municipal infrastructure a permanent program. These programs will contribute to improving Canada's infrastructure.</p>
<p>Reducing Post-Harvest Loss</p>	<p>Canada is active in undertaking some public research in areas relating to reducing post-harvest loss. This research work has</p>

	<p>focused on a number of techniques that reduce post-harvest losses. While much of the international dialogue surrounding post-harvest losses to date looks at storage and transportation, Canada's public research in this area has focused on such innovations as the use of differing cultivars to reduce losses, better techniques to identify ripeness, and so on. These best practices have practical applications for Canadian farmers in the horticulture sector but may also be applicable in other sectors.</p>
<p>Mitigating Climate Change</p>	<p>Canada has contributed to mitigating climate change in other APEC economies through the Support Program to Respond to Climate Change in Vietnam which aims to assist the Vietnamese Government to address priority issues established in the National Target Programme to Respond to Climate Change. This includes mitigating climate change through green house gas absorption and emissions control, building adaptive capacity to deal with the harmful impacts of climate change, and enhancing measures for cross-cutting issues concerning climate change.</p>
<p>Emergency Response to Natural Disasters and Social Unrest</p>	<p>Canada is a member of the Hyogo agreement and is working to meet commitments under that agreement.</p> <p>Canada works to stimulate economic growth by reducing disaster risk, through: Supporting innovative approaches by or through ASEAN to improve the region's ability to mitigate and respond to the trans-boundary elements of natural disasters and hazards; and helping ASEAN launch a regional legal framework for multilateral cooperation and collaboration in disaster risk reduction.</p>
<p>Nutrition Security</p>	<p>Nutrition is a key priority for Canada's international development assistance agenda. Canada provides significant support to key multilateral partners, such as the Micronutrient Initiative and World Food Programme, to improve nutrition security of the most vulnerable.</p>
<p>Trade Facilitation</p>	<p>Canada views open, transparent, and science-based approaches to trade as critical for food security. Canada has an ambitious trade agenda and is currently pursuing bilateral trade agreements with a number of APEC economies. Canada is also a strong advocate for science-based approaches to trade and plays an active role in multilateral organizations and standard-setting bodies. Canada also works through its bilateral and multilateral relationships to promote the adoption of science-based approaches to trade.</p>

Q1 What are the most important issues/largest obstacles that must be addressed to achieve food security in the Asia Pacific Region? Please rank in order of priority: 1 being the most important, 10 the least important.

Answered: 25 Skipped: 0

	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Average Ranking
Production	44% 11	12% 3	0% 0	20% 5	8% 2	4% 1	4% 1	8% 2	0% 0	0% 0	0% 0	0% 0	0% 0	25	10.96
Infrastructure	0% 0	20% 5	24% 6	0% 0	12% 3	24% 6	12% 3	4% 1	0% 0	4% 1	0% 0	0% 0	0% 0	25	9.28
Trade Policies/Market Access	20% 5	12% 3	12% 3	4% 1	4% 1	8% 2	16% 4	4% 1	4% 1	4% 1	8% 2	0% 0	4% 1	25	8.76
Investment Climate	0% 0	0% 0	4% 1	12% 3	16% 4	20% 5	4% 1	20% 5	4% 1	8% 2	4% 1	8% 2	0% 0	25	6.96
Price Volatility	0% 0	8% 2	4% 1	12% 3	8% 2	12% 3	8% 2	16% 4	20% 5	4% 1	4% 1	4% 1	0% 0	25	7.16
Climate/Natural Disasters	0% 0	0% 0	4% 1	12% 3	8% 2	4% 1	8% 2	8% 2	32% 8	12% 3	4% 1	8% 2	0% 0	25	6.08
Funding for Agricultural Research and Development	0% 0	8% 2	12% 3	8% 2	8% 2	8% 2	4% 1	28.00% 7	8% 2	12% 3	4% 1	0% 0	0% 0	25	7.40
Technology Dissemination Process	4% 1	8% 2	12% 3	12% 3	8% 2	4% 1	8% 2	4% 1	8% 2	12% 3	12% 3	8% 2	0% 0	25	7.24
Post Harvest Loss	8% 2	12% 3	12% 3	4% 1	20% 5	8% 2	4% 1	0% 0	8% 2	8% 2	8% 2	8% 2	0% 0	25	8.04
Access to Capital	8% 2	4% 1	0% 0	12% 3	8% 2	4% 1	12% 3	0% 0	8% 2	16% 4	16% 4	8% 2	4% 1	25	6.32
Social/Political Unrest	4% 1	0% 0	4% 1	0% 0	0% 0	0% 0	12% 3	4% 1	0% 0	12% 3	28.00% 7	24% 6	12% 3	25	3.96
Nutrition Insecurity	4% 1	12% 3	12% 3	0% 0	0% 0	4% 1	8% 2	0% 0	4% 1	8% 2	12% 3	32% 8	4% 1	25	5.72
Other	8% 2	4% 1	0% 0	4% 1	0% 0	0% 0	0% 0	4% 1	4% 1	0% 0	0% 0	0% 0	76% 19	25	3.12

**Q2 If you chose "other" in question #1
please specify.**

Answered: 6 Skipped: 19

Q3 Which of these issues is APEC best equipped to address? Please rank: 1 being best equipped, 10 least equipped.

Answered: 24 Skipped: 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	Total	Average Ranking
Production	12.50% 3	16.67% 4	8.33% 2	8.33% 2	12.50% 3	12.50% 3	8.33% 2	16.67% 4	4.17% 1	0% 0	0% 0	0% 0	0% 0	24	9.29
Infrastructure	0% 0	8.33% 2	25% 6	12.50% 3	4.17% 1	16.67% 4	20.83% 5	4.17% 1	0% 0	8.33% 2	0% 0	0% 0	0% 0	24	8.75
Trade Policies/Market Access	62.50% 15	4.17% 1	4.17% 1	8.33% 2	0% 0	8.33% 2	0% 0	0% 0	4.17% 1	4.17% 1	0% 0	0% 0	4.17% 1	24	11.00
Investment Climate	0% 0	37.50% 9	4.17% 1	16.67% 4	12.50% 3	8.33% 2	4.17% 1	0% 0	12.50% 3	0% 0	0% 0	4.17% 1	0% 0	24	9.42
Price Volatility	4.17% 1	4.17% 1	8.33% 2	12.50% 3	12.50% 3	4.17% 1	16.67% 4	12.50% 3	12.50% 3	4.17% 1	4.17% 1	0% 0	4.17% 1	24	7.54
Climate/Natural Disasters	0% 0	0% 0	0% 0	0% 0	8.33% 2	8.33% 2	8.33% 2	20.83% 5	8.33% 2	25% 6	8.33% 2	12.50% 3	0% 0	24	5.17
Funding for Agricultural Research and Development	4.17% 1	12.50% 3	20.83% 5	8.33% 2	8.33% 2	12.50% 3	4.17% 1	8.33% 2	8.33% 2	4.17% 1	8.33% 2	0% 0	0% 0	24	8.54
Technology Dissemination Process	4.17% 1	4.17% 1	4.17% 1	8.33% 2	25% 6	8.33% 2	12.50% 3	4.17% 1	12.50% 3	12.50% 3	0% 0	4.17% 1	0% 0	24	7.58
Post Harvest Loss	4.17% 1	0% 0	8.33% 2	16.67% 4	8.33% 2	8.33% 2	8.33% 2	8.33% 2	12.50% 3	8.33% 2	16.67% 4	0% 0	0% 0	24	7.08
Access to Capital	0% 0	4.17% 1	12.50% 3	4.17% 1	4.17% 1	4.17% 1	8.33% 2	8.33% 2	4.17% 1	20.83% 5	25% 6	4.17% 1	0% 0	24	5.96
Social/Political Unrest	8.33% 2	4.17% 1	0% 0	4.17% 1	0% 0	4.17% 1	4.17% 1	4.17% 1	4.17% 1	4.17% 1	29.17% 7	29.17% 7	4.17% 1	24	4.75
Nutrition Insecurity	0% 0	0% 0	4.17% 1	0% 0	0% 0	4.17% 1	4.17% 1	8.33% 2	16.67% 4	8.33% 2	8.33% 2	45.83% 11	0% 0	24	3.92
Other	0% 0	4.17% 1	0% 0	0% 0	4.17% 1	0% 0	0% 0	4.17% 1	0% 0	0% 0	0% 0	0% 0	87.50% 21	24	2.00

**Q4 If you chose "other" in question #3
please specify this issue.**

Answered: 3 Skipped: 22

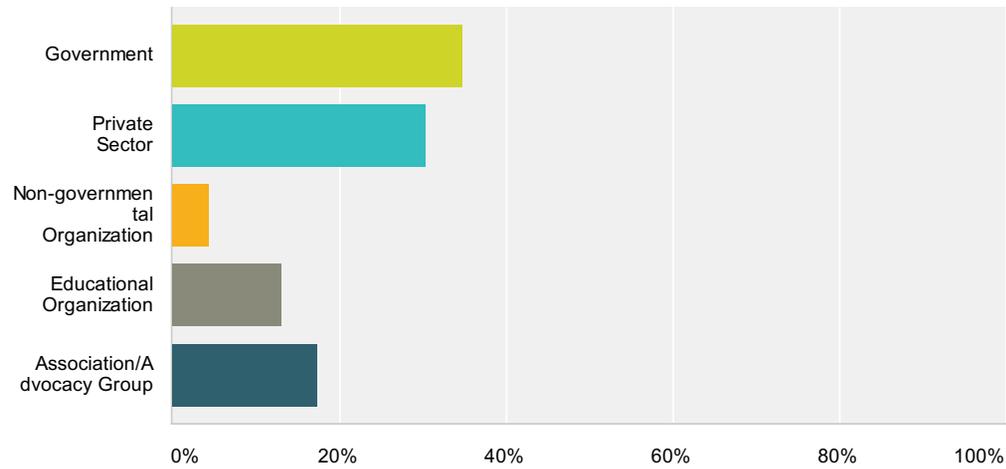
Q5 What are the primary activities your organization is pursuing to address food security? Please choose all that apply.

Answered: 25 Skipped: 0

Answer Choices	Responses	
Increasing Agricultural Production and Productivity	72%	18
Enhancing Food Safety and Quality	60%	15
Improving Access to Food	48%	12
Research and Policy Recommendations on Food Security	72%	18
Effective Management of Marine Ecosystems, Fisheries, and Aquaculture	52%	13
Increasing Farmers' Access to Markets, Market Data, and Financing	68%	17
Infrastructure Development and Supply Chain Connectivity	36%	9
Reducing Post-Harvest Loss	44%	11
Mitigating Climate Change	36%	9
Emergency Response to Natural Disasters and Social Unrest	20%	5
Trade Facilitation	48%	12
Nutrition Security	32%	8
Total Respondents: 25		

Q6 What type of organization do you represent?

Answered: 23 Skipped: 2



Answer Choices	Responses
Government	34.78% 8
Private Sector	30.43% 7
Non-governmental Organization	4.35% 1
Educational Organization	13.04% 3
Association/Advocacy Group	17.39% 4
Total	23

Q7 Please provide a brief summary of your organization's activities, if any, in the areas listed below.

Answered: 18 Skipped: 7

Answer Choices		Responses	
Increasing Agricultural Production and Productivity	Responses	55.56%	10
Enhancing Food Safety and Quality	Responses	55.56%	10
Improving Access to Food	Responses	50%	9
Research and Policy Recommendations on Food Security	Responses	72.22%	13
Effective Management of Marine Ecosystems, Fisheries, and Aquaculture	Responses	50%	9
Increasing Farmers' Access to Markets, Market Data, and Financing	Responses	61.11%	11
Infrastructure Development and Supply Chain Connectivity	Responses	27.78%	5
Reducing Post-Harvest Loss	Responses	44.44%	8
Mitigating Climate Change	Responses	38.89%	7
Emergency Response to Natural Disasters and Social Unrest	Responses	16.67%	3
Nutrition Security	Responses	33.33%	6
Trade Facilitation	Responses	33.33%	6
Other (please specify)	Responses	11.11%	2

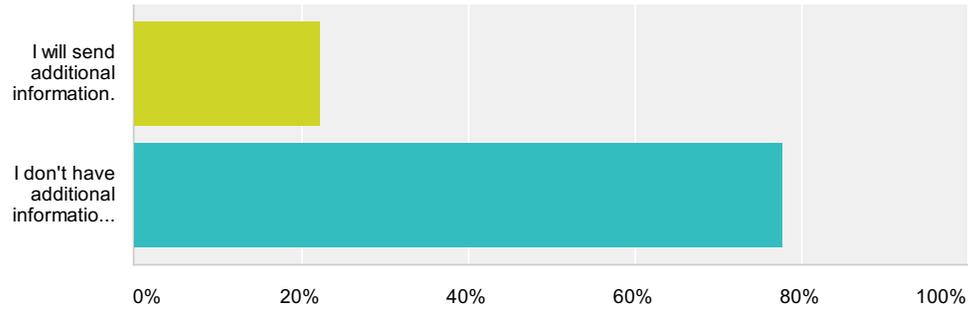
Total Respondents: 18

Q8 Please provide a contact email or web address where more information can be obtained regarding the above activities.

Answered: 21 Skipped: 4

Q9 If you wish to provide additional information please email Barbara Hazzard at bhazzard@ncapec.org

Answered: 18 Skipped: 7



Answer Choices	Responses	
I will send additional information.	22.22%	4
I don't have additional information to provide.	77.78%	14
Total		18