

# Policies, Institutions, and Markets:



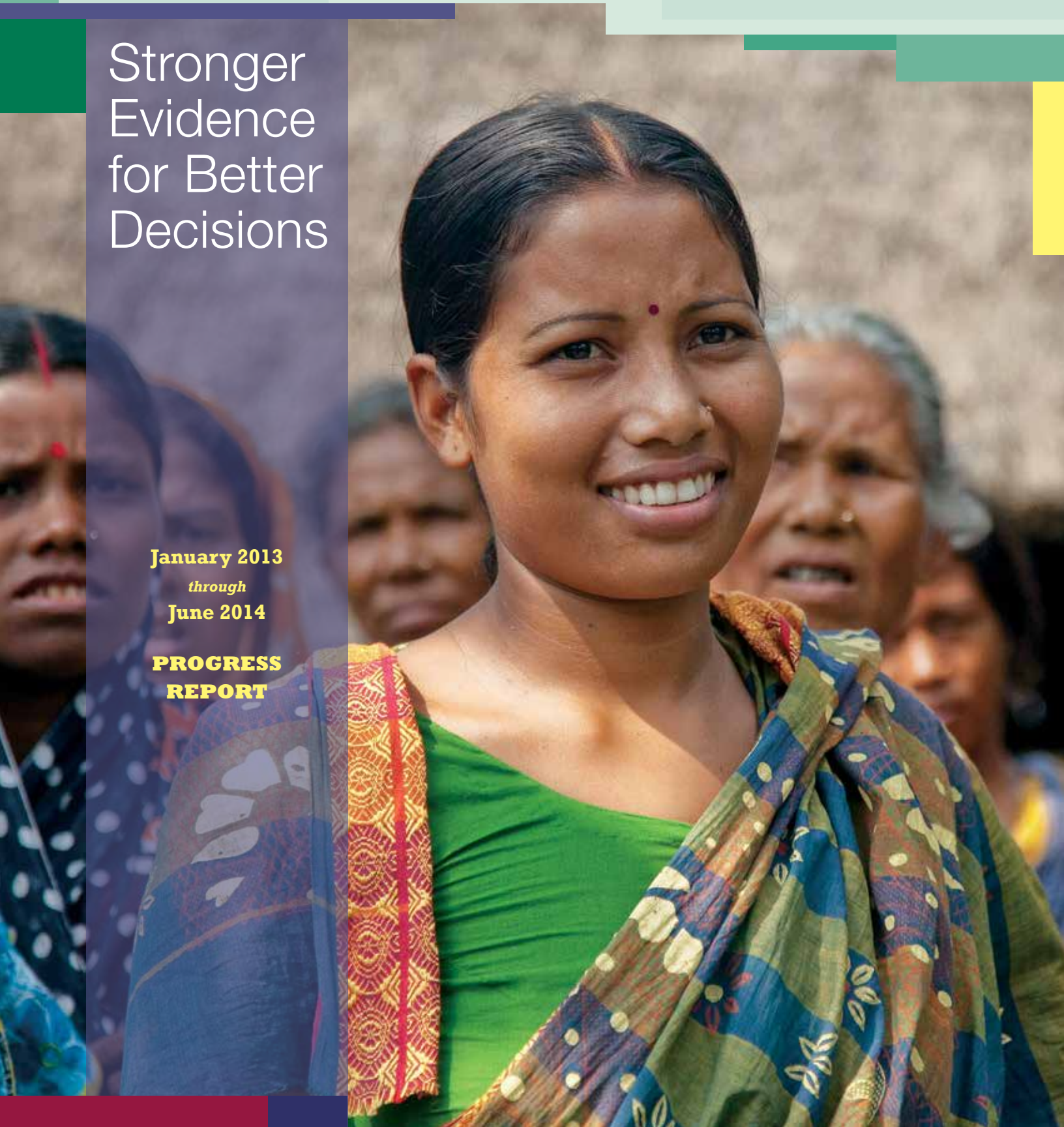
RESEARCH  
PROGRAM ON  
Policies,  
Institutions,  
and Markets

Led by IFPRI

Stronger  
Evidence  
for Better  
Decisions

January 2013  
*through*  
June 2014

**PROGRESS  
REPORT**



## Participating Centers



## PIM At a Glance

A program of **action-oriented policy** research to inform decisions on food and agricultural policies that will **better serve the interests of poor** producers and consumers, both **men and women**.

**One of 16** crosscutting research programs of **CGIAR**

**Applied** social science research with focus on **impact**

**Young** program; first 3 year cycle

Broad array of **noteworthy publications**

**Partnerships:** research, implementation, outreach, funding

**About USD90 million** annually; many funding sources

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# Message from IFPRI's Director General



**DEAR FRIENDS, COLLEAGUES, AND SUPPORTERS OF PIM,**

I am pleased to share with you key results of the past 18 months of work within the CGIAR Research Program on Policies, Institutions, and Markets (PIM). 2014 marks the final year of the first three-year phase of implementation of the program. As the program enters into its two-year extension phase (2015 and 2016), it is now a good time to reflect on the experience of the past three years, to learn lessons relevant to the ongoing evolution of PIM, and to celebrate the good research findings generated with the support of PIM.

Sound policies, well-functioning institutions, and inclusive and efficient markets form a foundation on which global food systems of the 21st century must be grounded. The challenge of meeting food needs of poor and hungry people now requires dismantling the barriers that stand between poor producers and their aspirations to farm better and live better lives. Many of these barriers are related to policies and institutions. Smallholders in poor countries and sophisticated commercial producers in the wealthy countries alike face new challenges in demand, technology, use of natural resources, and agroecology. PIM's work is squarely focused on understanding the issues, processes, and options of a wide range of decisionmakers whose actions will influence poverty, food security, hunger, and stewardship of natural resources now and in the decades ahead.

PIM has evolved since the program was launched in January 2012. The original program has been recast for a more focused emphasis on key outcomes and impact. Partnerships within and outside the CGIAR system have been strengthened; at present 14 of the 15 Centers of CGIAR participate in PIM. Researchers from throughout CGIAR and outside have joined forces to model alternative futures and to evaluate interventions to strengthen value chains. A comparable team is forming to address adoption of technology and to assess different approaches to

extension and the informational needs of farmers. PIM's gender work has been consistently strong, and the teams are developing new tools and methods in conjunction with a network of gender researchers within CGIAR.

IFPRI is pleased to lead PIM and proud of the program's accomplishments. IFPRI offers intellectual, technical, and administrative support to the program and mobilizes bilateral funding to complement contributions from the CGIAR Fund. IFPRI benefits from the collaborative relations with other Centers and partners and the consistent emphasis on results.

I want to express my sincere appreciation to Karen Brooks, director of PIM and the rest of the PIM team, including the Program Management Unit, the Management Committee, the Focal Points from participating Centers, and the Science Policy and Advisory Panel, for their contributions. PIM has made a strong start during this first phase and will be called upon to do even more in the future as the challenges to the global food system come more clearly into view.

We look forward to continuing to support PIM in the years to come.

Sincerely,

A handwritten signature in red ink that reads "Shenggen Fan". The signature is written in a cursive, slightly slanted style.

**Shenggen Fan**

*Director General, International Food Policy Research Institute (IFPRI)*



# Message from PIM's Director

**T**he health of policies, institutions, and markets in the settings in which CGIAR is most active determines the effectiveness of much of the work of the entire system. We in PIM are doing our best to assure that our research agenda is focused on the most relevant priorities, aligned with needs and processes of key implementation partners, and coordinated well with complementary work within CGIAR and outside.

The emphasis on results and impact pathways within CGIAR over the past three years has been constructive. We within PIM are investing substantially in trying to understand better how policy-oriented research generates results and how we can best measure them. We have struck a chord of enthusiasm within the profession to explore this jointly and have the help of intellectual leaders within CGIAR and externally.

We welcome the focus on better understanding how to “walk the pathway,” but we also see the need occasionally to lift our sights and remind ourselves of our vision. Understanding and remembering our specific objectives helps us prioritize the myriad demands on and intellectual temptations of such a broad program. What will success look like for PIM? How will the world be different if PIM's research achieves its intended goals?

As a result of our current and future work on technology, research managers will have better tools to make choices about investments in improved varieties, breeds, managerial practices, and integrated systems. Ministers of finance in developing countries will be able to gauge their own investments in public research and other agricultural activities relative to global benchmarks and will see more clearly the returns they are reaping. Ministers of agriculture, prime ministers, cabinets, parliaments, presidents, and civil society will be able better to see how the constellation of policies and expenditure decisions affects poor producers and consumers and trade balances. Program implementers will have better geospatial tools for targeting beneficiaries (and particularly for understanding differential needs of men and women) and tracking results. And the opacity of the “black box” linking agricultural research to farmers' decisions to

adopt new technologies will clear, offering greater guidance on positioning research for high returns.

Similarly, our current and future work on markets will provide insights into how best to analyze the complex relationships subsumed within the metaphor of value chains and how to intervene in poorly configured chains to increase returns to producers, lower costs to consumers, and create good jobs for rural residents. We will be able to prioritize our work to focus on the “big losers;” that is, those value chains in which the aggregate loss to developing societies is greatest and in which intervention will have the best returns.

Our work on social protection will result in well dimensioned and designed programs with fit-for-purpose instruments and timely tracking of performance. We will understand how programs supporting agricultural growth and those for social protection complement each other and where the boundaries should lie. We will better understand the long-term impact of social protection and whether the programs build resilience, dependence, other effects poorly envisaged at present, or all three.

By continuing work with national policymakers, we will provide timely and tailored responses to their requests for analytical assistance and new insights into the challenges and options for countries engaged in structural transformation in the globalized setting of the early 21st century.

Our current and future work on natural resources will give us greater clarity on the metrics of management, so that the natural resource management issues now external to much analysis can be taken fully into account. Our work on land management and tenure will contribute to the replacement of concepts of “grabbing” by shared expectations of how orderly land markets function in dynamic developing countries and how the rights of participants, including women and marginalized groups, are respected. Our work on water will complement that of other CGIAR Research Programs, and particularly Water, Land, and Ecosystems, to identify policies and institutions to husband this increasingly rare resource.

Our on-going work on gender will provide rigorous tools and methods to take us beyond well-meaning myths to more solidly-grounded understanding of how gender affects achievement of CGIAR's goals and objectives. Those who engage with PIM at all levels will exit with enhanced capacity—to understand the world, contribute to change, and share skills with others.

The insights from each of our flagships already inform choices of key actors in government, the private sector, on farms, in the NGO community and civil society organizations, and in the international development agencies. With sharper expression of our findings and better targeting of our outreach, those who act to influence food security, well-being of the poor, hunger, and stewardship of natural resources will be able to make informed decisions.

These are key elements of our vision for PIM. We have a strong start in our first phase—feet clearly on pathways and eyes on the horizon. The accomplishments presented in the following pages are worthy of celebration and simultaneously very modest relative to our ambitious objectives. We greatly appreciate the interest and support of our funders, researchers, partners, evaluators, critics, and especially of our lead Center, IFPRI.

Sincerely,



**Karen Brooks**

*Director, CGIAR Research Program on Policies, Institutions, and Markets*



# Introduction

**S**ound policies, robust institutions, and well-functioning markets complement technological discovery in agricultural science to ensure that consumers have access to nutritious and affordable food, producers have incentives to plant and harvest, and the myriad participants in complex value chains are well linked in mutually beneficial connections. The CGIAR Research Program on Policies, Institutions, and Markets (PIM) provides foundations of analysis and knowledge for food systems that help smallholder farmers and poor consumers live better lives.

PIM has nearly completed its first three years of implementation (ending December 2014) and has made notable progress in several areas during this period. First, this has been a time of very productive attention to the core substantive areas of the PIM program, with a significantly improved understanding of such subjects as plausible futures for food security, how agricultural research contributes to productivity growth, the influence of government policies on development, ways to strengthen value chains and build safety nets, how to address gender inequities, approaches to management of land and water that can improve livelihoods and stewardship of resources, how to measure agricultural biodiversity, and other pressing issues. Second, it has also been a period of intense reflection on the metrics of policy-oriented research; that is, how to quantify and document the contribution that research on policies, institutions, and markets makes to developmental outcomes in the complex

political economies of developing countries and a multi-polar interlinked global agricultural system. Third, we have sought to understand how PIM can add value to its lead and participating Centers, CGIAR as a whole, partners, clients, and the collective development effort. These three linked but separate objectives have made the past 18 months a period of high demands on the program and of remarkable creativity on the part of PIM's researchers.

While reflecting on the recent past, we are also looking ahead to finalize our research program and plan of work for the two years ending in December 2016. Many of the insights of the last 18 months lead naturally to successor questions and areas of application. In other cases, we have become aware of gaps in the program and have selected a few new issues to add to PIM's portfolio. We appreciate our continued collaboration with the excellent researchers who have contributed to PIM since 2012. We also look forward to strengthening interaction with key implementation partners in the NGO community and among the international financial institutions. We profoundly appreciate the support of our funding partners, and we endeavor to assure our donors that our work is at once visionary and practically applicable.

In the pages that follow we are happy to share with you some of the research results from the period 2013–2014 and how these are being used to support policy debate; reprioritization of public expenditures; changes in rules, regulations, and programs; and increased capacity of key partners.



# Select Events



(top) IFPRI 2020 Conference;  
(bottom) Purnima Menon, senior research fellow, IFPRI at “Approaches and Methods for Policy Process Research” workshop.  
PHOTOS: IFPRI

## **FOOD SECURITY FUTURES CONFERENCE: HOW CAN PUBLIC-SECTOR RESEARCH HELP MEET THE CHALLENGES OF FOOD AND NUTRITION SECURITY?**

**April 11–12, 2013, Dublin, Ireland**

The Food Security Futures conference organized by PIM and the UN Food and Agriculture Organization (FAO) brought together senior researchers from CGIAR and FAO, stakeholders from the private sector, national agricultural research organizations, and civil society groups to present their perspectives on public sector research priorities related to food security and nutrition, natural resources, and climate change.

## **METHODS AND STANDARDS FOR RESEARCH ON GENDER AND AGRICULTURE**

**June 19–21, 2013, Montpellier, France**

During this PIM-funded workshop in Montpellier, gender specialists from across the CGIAR Consortium, DFID, the World Bank, and universities worked together to identify a set of common standards that would ensure the quality of gender research and allow researchers to scale and draw broader lessons from their work across studies. Participants developed a minimum set of survey questions that researchers must include in their household or individual questionnaires if they claim to be addressing gender. They also agreed on basic standards that must be met for qualitative and participatory methods.

## **RESEARCH ON AGRICULTURAL EXTENSION SYSTEMS: WHAT HAVE WE LEARNED, AND WHERE DO WE GO FROM HERE?**

**October 15–16, 2013, Washington, DC, US**

Participants from CGIAR, universities, multilateral agencies, NGOs, regional networks, private sector, and donor organizations met at this workshop organized by PIM to identify and discuss areas in which the program could contribute to innovative work on the changing functions and modalities of extension in light of present and future agricultural challenges.



## **APPROACHES AND METHODS FOR POLICY PROCESS RESEARCH**

**November 18–20, 2013, Washington, DC, US**

How can research generate policy-relevant evidence? How can we increase the likelihood that evidence is used effectively by decisionmakers? How can researchers ensure that research serves as a “catalyst” to boost the effectiveness of policies and programs? The workshop organized jointly by PIM and the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) brought together a group of more than 50 policy experts, researchers, and practitioners from the agriculture, natural resource management, nutrition, and health sectors to try and answer those questions.

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## **MAINSTREAMING LIVESTOCK VALUE CHAINS: BRIDGING THE RESEARCH GAP BETWEEN HOUSEHOLD ANALYSIS AND POLICY MODELING**

**November 5–6, 2013, Accra, Ghana**

The main objective of the conference was to address gaps in the design and application of analytical tools for livestock policy and impact analysis. Event speakers and participants included livestock specialists and analysts in agricultural policy modeling from within CGIAR, international agencies tracking poverty, trade and investment patterns, and development implementation organizations.

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## **BIOSIGHT WORKSHOP: BUILDING A FRAMEWORK FOR MODELING SUSTAINABLE AGRICULTURAL INTENSIFICATION**

**December 3–4, 2013, Washington, DC, US**

The BioSight project, initiated in early 2013 with funding from PIM, seeks to build a strong analytical framework for understanding and managing the tradeoffs around agricultural intensification that have consequences for environmental quality, resource sustainability, and socioeconomic well-being. The workshop provided a platform for a rich and broad-ranging discussion on how to improve the methodological and conceptual foundations of this work, including such questions as how to represent the role of institutions in bioeconomic modeling and what are the key entry-points for gender-relevant issues.



(top) Ruth Meinzen-Dick, senior research fellow, IFPRI, and (bottom) Blake Ratner, senior research fellow, WorldFish, at “Approaches and Methods for Policy Process Research” workshop.  
PHOTOS: IFPRI



## **AGRICULTURAL TRANSFORMATION AND FOOD SECURITY IN CENTRAL ASIA**

**April 8–9, 2014, Bishkek, Kyrgyzstan**

A research conference organized by the International Food Policy Research Institute and the University of Central Asia with support from PIM explored how Central Asian countries could best meet the needs of present and future populations for adequate access to nutritious and safe foods and improve food and nutrition security. The conference unveiled the new IFPRI's Central Asia Research and Capacity Strengthening Program implemented in collaboration with the University of Central Asia and other research institutions in the region, the Eurasian Center for Food Security at Moscow State University, PIM, and the CGIAR Research Program on Agriculture for Nutrition and Health.



## **IFPRI 2020 CONFERENCE: BUILDING RESILIENCE FOR FOOD AND NUTRITION SECURITY**

**May 15–17, 2014, Addis Ababa, Ethiopia**

More than 800 experts and practitioners gathered in Addis Ababa to discuss how to incorporate resilience into the post-2015 Development Agenda and improve policies, investments, and institutions to strengthen resilience so that food and nutrition security can be achieved for all. PIM was one of the conference partners and participants.

## **GLOBAL FUTURES AND STRATEGIC FORESIGHT PROGRAM: THREE IMPACT TRAININGS**

**January 2014, IFPRI, Washington, DC, US**

**February 2014, CIAT, Cali, Columbia**

**May 2014, WorldFish Center, Penang, Malaysia**

The workshop trainings on the updated IMPACT model organized by the PIM/IFPRI foresight team for colleagues from other CGIAR Centers and external institutions proved to be a successful means for not only familiarizing collaborators with the program's tools and methodologies but also for expanding the community of foresight practitioners and increasing visibility and understanding of the GFSF work within CGIAR.

(top) PIM's director, Karen Brooks, speaks at the "Agricultural Transformation and Food Security in Central Asia" conference. PHOTO: RESAKSS ASIA; (bottom) IFPRI 2020 Conference. PHOTO: IFPRI

**GLOBAL TRADE ANALYSIS PROJECT (GTAP) 17TH ANNUAL CONFERENCE ON GLOBAL ECONOMIC ANALYSIS “NEW CHALLENGES IN FOOD POLICY, TRADE AND ECONOMIC VULNERABILITY”**

**June 18–20, 2014, Dakar, Senegal**

The conference co-organized by GTAP, a global network of researchers and policymakers who conduct quantitative analysis of international policy issues, and the African Growth and Development Modeling Consortium (AGRODEP), with financial support from PIM, brought together around 200 economists from 52 countries to discuss issues of food policy, trade, and economic vulnerability, with a particular focus on Africa.



# FORESIGHT MODELING

Over the next half century, the world's population will increase by roughly one-third—mostly in poorer countries—and will become increasingly urbanized. Aggregate demand for food, feed, fiber, and biofuel products is projected to increase by 60 percent or more. Just keeping pace with this scale of growth will represent a major challenge, but agriculture is also being subjected to increasing stresses from socioeconomic, environmental, and other drivers of change.

**“This work gives us quantitative tools to explore a number of alternative futures. We can use them to identify investments in agricultural research and innovations in policy to secure food for the generations to come.”**

—Stanley Wood, senior program officer, Agricultural Development Program, the Bill & Melinda Gates Foundation

PIM's foresight modeling work analyzes alternative future scenarios and policy options to explore how new agricultural technologies and practices can best help reduce poverty and hunger while protecting natural resources.

The tools for this work include IFPRI's International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT—a partial equilibrium global agricultural sector model), hydrology and water models, process-based crop models, and the outputs of the main climate models. Each of the models is being enhanced continuously in order to improve the quality of projections.

Twelve of the CGIAR's 15 Centers are currently participating in this work, together with partners from outside

CGIAR. The research is realized through the Global Futures and Strategic Foresight Program (GFSF) facilitated by IFPRI and supported by PIM, the Bill & Melinda Gates Foundation, and the CGIAR Research Program on Climate Change and Food Security (CCAFS).

In 2013 and 2014 the program focused on improvements in the models, training, and the quantitative ex ante assessment of 17 promising technologies and management systems (for maize, wheat, rice, potato, sorghum, groundnut, and cassava). Additional technologies and scenarios will be analyzed in 2015–16, including for beans, chickpea, millet, and sweet potato, as well as livestock and fish. In 2015–2016, the team will increase attention to gender, nutrition, natural resources management, and pests



## What Is IMPACT?

IMPACT is a suite of models designed to explore alternative futures for global agricultural markets, including food production, demand, trade, prices, and food security. Researchers develop a variety of global scenarios to explore the possible effects of climate change, economic development, bioenergy policies, and changes in diet/food preferences around the world.

Key improvements undertaken in 2013–2014 include

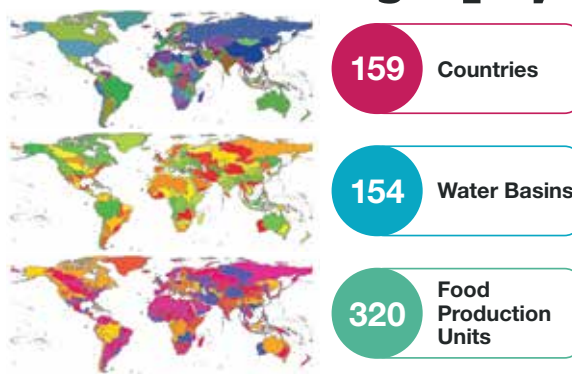
- ▶ updating the base year to 2005;
- ▶ including all CGIAR-mandated crops;
- ▶ increasing the spatial resolution to the level of individual countries;
- ▶ including water basins within countries as units; and
- ▶ enhancing water treatment and hydrological management of weather and climate shocks.

and diseases. In addition, efforts are under way to link better with household-level data and to allow more detailed assessment of particular geographies.

Models and results from this work are made available as international public goods. In the first 6 months of 2014, GFSF held three training workshops on the updated IMPACT model organized by the PIM/IFPRI foresight team for colleagues and collaborators from CGIAR and outside partner organizations (see more in the Select Events section). The IMPACT modeling team also collaborates actively with other leading global modeling groups in the Agricultural Model Intercomparison and Improvement Project (AgMIP).

In addition to main users from CGIAR, interest in this work is also growing among external partners and clients.

## IMPACT Geography



Source: IMPACT team, IFPRI

Researchers are working to develop and improve a wide range of biophysical crop and livestock models and link them to the IMPACT model. Collaborating with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), the team integrates findings of the major climate models as they become available.

is specified as a set of 159 country-level supply and demand equations linked to the rest of the world through trade and prices. The basic IMPACT model is combined with the IMPACT Water Simulation Model (IWSM) in order to estimate the interactions between water supply and demand and food supply, demand, and trade.

IMPACT now covers 56 commodities—including all cereals, soybeans, roots and tubers, meats, milk, eggs, oils, vegetables, fruits, sugar, and sweeteners—that account for virtually all of world food production and consumption. It

Users of the foresight modeling outputs include the Bill & Melinda Gates Foundation, the International Fund for Agricultural Development (IFAD), the World Bank, the Organisation for Economic Co-operation and Development (OECD), and the Asian Development Bank. The foresight work is also generating strong interest from country governments and is used to inform FARA's (Forum for Agricultural Research in Africa) leadership in development of the Science Agenda for Agriculture in Africa.

Moving forward, sex-disaggregated data will be used to assess the gender-differentiated impacts of alternative scenarios.

**“Thanks to the IMPACT modeling training I found completely new ways of thinking about agriculture and fisheries.”**

—Khondker Murshed-e-Jahan, IMPACT training workshop participant, WorldFish

# SCIENCE POLICY AND INCENTIVES FOR INNOVATION



The policy environment plays a central role in determining investment in innovation by both the public and the private sectors. Flagship 2 addresses both how scientific research can be best organized and funded so that it generates innovations and the features of the regulatory environment best suited for successful release and subsequent uptake of new technologies.

The outcomes of this flagship project will help guide decisions on budget allocations for research, regulations on release of new varieties (including genetically modified organisms, or GMOs), regulations on patent regimes, and rules governing public-private partnerships.

## TRACKING INVESTMENTS IN RESEARCH AND TECHNOLOGY

Accurate, reliable, and internationally comparable quantitative information on investment in science and technology is fundamental to understanding the contribution of research to agricultural growth.

Providing such data is the mission of the program on Agricultural Science and Technology Indicators (ASTI)<sup>1</sup>, co-financed by PIM. Through its network of national, regional, and international partners, ASTI collects data on agricultural R&D spending and capacity from governments, universities, nonprofit organizations, and private agencies worldwide. The program publishes quantitative and qualitative information on trends in funding, spending, and allocations and characteristics of human resource capacities, including the proportion of researchers who are female, at both country and regional levels.

In 2013–2014, ASTI completed data collection and analysis in 40 African countries south of the Sahara and released a new series of country factsheets highlighting present trends, research, and analysis. This work showed that although agricultural R&D capacity and investments in the region have increased since 2008, spending was concentrated in a few countries. Widespread underinvestment, volatile funding flows, high staff turnover, low proportions of female researchers, and aging of the scientific cadre remain areas of concern in many African countries.

The importance of the ASTI work is continuously recognized. In 2013, FAO incorporated ASTI indicators on the FAOSTAT website. A number of influential global and regional initiatives including the Comprehensive Africa Agriculture Development Programme (CAADP), the G8 New Alliance for Food Security and Nutrition, the Interagency Report to the G20 on sustainable agricultural productivity, and the UN post-2015 Development Agenda have stressed the importance of agricultural R&D indicators and strongly endorsed the value of ASTI. Most recently, ASTI outputs have played an important role in shaping the Science Agenda for Agriculture in Africa.

<sup>1</sup> [www.asti.cgiar.org](http://www.asti.cgiar.org)

In 2014–2015, ASTI plans to release new datasets and country and regional publications for West Asia, South Asia, North Africa, and Latin America and the Caribbean.

## SUPPORTING DECISIONMAKING ON BIOTECHNOLOGY

Biotechnology includes a wide range of applications of modern life sciences to agriculture, such as bioinformatics, marker-assisted selection, and bio-engineering. Smallholder farmers in more than 15 countries now successfully grow crop varieties developed through genetic modification. Many others, however, have not integrated it into their agricultural systems, often due to a lack of a biosafety framework at the national level. The Program for Biosafety Systems (PBS)<sup>2</sup>, part of PIM with major funding from USAID and facilitation from IFPRI, works with stakeholders in Africa and Asia to develop and implement science-based, functional biosafety systems that can ultimately expand producer choice, inspire consumer confidence, facilitate trade, and promote agricultural research and development. PBS uses an integrated, strategic, and practical approach to build regulatory capacity in its partner countries, often relying on decision support tools, such as net mapping and process mapping, to address problems and inform its plan of work.

In 2013–2014, PBS has assisted several countries facing challenges regarding regulatory approval of GMOs. In Uganda, a joint effort by public and private researchers has resulted in field trials of promising new products. Wider

dissemination, however, depends on passage of a biosafety bill that is currently advancing through parliament and is poised for a “second reading.” The bill will establish a predictable regulatory pathway for new GM crop varieties (for example, disease-resistant banana, virus-resistant cassava, and drought-tolerant maize) that are in the public sector R&D portfolio and could offer significant benefits to small-scale Ugandan farmers. In Malawi, the PBS team provided technical assistance on regulatory issues that allowed the country to complete successfully the first GM field trial (for insect-protected cotton); following this, the government approved multi-location trials. In Vietnam and Indonesia, PBS has trained a wide range of stakeholders and continues to provide technical assistance and advice to the regulatory authorities. In Indonesia, biosafety regulations have been synchronized with those for variety release, removing delays in the approval process. Indonesian farmers are likely to have access to drought-tolerant GM sugar cane within a few years, marking the first commercial introduction of a GM sugarcane product globally.

PBS continued over this period to expand its outreach through publications, having released several books addressing the socioeconomic impacts of genetically modified crops, including gender dimensions of adoption and distribution of benefits. The program is one of the leading providers of biosafety training in Southeast Asia and Africa south of the Sahara. One of the recent events in 2014 included a biosafety workshop in Ghana which brought together scientists, media, and regulators to discuss frequently asked questions on biotechnology.

<sup>2</sup> [www.pbs.ifpri.info](http://www.pbs.ifpri.info)







# ADOPTION OF TECHNOLOGY AND SUSTAINABLE INTENSIFICATION



**T**echnological dynamism is key to improving the lives of small-holder farmers worldwide. Understanding patterns and impacts of adoption of superior technology and sustainable managerial practices is a critical first step toward helping farmers succeed. Similarly, identifying policies that impede success and facilitating their removal puts a strong foundation under farmers' decisions to invest in innovation. The flagship addresses the important areas of extension and advisory services that underpin rapid diffusion of many technologies, including knowledge-intensive NRM practices. The flagship also supports activities to improve the suite of tools and indicators for assessment (for example, tracking of adoption at scale and analyzing short-term and long-term tradeoffs associated with new technologies).

Poor women and men face a number of constraints that must be prioritized for particular contexts so that policy responses can be well targeted.

Among the many constraints, weak access to information can be very damaging. New information channels are emerging and can be tested to see if they provide better and cheaper access to information about new technologies and inputs. Although the general constraints to adoption are well known, knowledge of how they operate in specific locations is hampered by poor data on what technologies are actually in use. New low cost methods for tracking adoption are needed so that researchers, development organizations, and governments can analyze the performance of innovation and target investments.

We work with many partners from CGIAR and other organizations to find answers to these challenges and

questions and develop practical recommendations to address them. The following are some examples:

- HarvestChoice<sup>3</sup>, a joint program of IFPRI and the University of Minnesota with support from PIM and other donors, coordinates a CGIAR-wide initiative on geo-referencing activities of the 16 CGIAR Research Programs, funded by PIM. This includes cataloging the CGIAR technologies and developing interactive tools for data visualization.
- AgriTech Toolbox<sup>4</sup>, an online tool built from the results of a multi-year research project by IFPRI and culminating in a book titled *Food Security in a World of Natural Resource Scarcity: The Role of Agricultural Technologies*

3 [www.harvestchoice.org](http://www.harvestchoice.org)

4 <http://apps.harvestchoice.org/agritech-toolbox/>

(Rosegrant et al (2014) was launched with support from CropLife International, the US State Department, and PIM in 2014. The book compares the effects that different technologies have on crop yields and resource use, particularly harvested area, water, and nutrients. The Toolbox helps policymakers and agricultural experts make use of data and see how specific technologies will affect productivity, food security, and natural resource use.



**“The results of the study are incredibly promising. The book finds that the number of food-insecure people in developing countries in 2050 could be reduced by 9 percent if no-till agriculture (which disturbs the soil as little as possible to retain nutrients and water) is adopted more aggressively. Widespread adoption of heat-tolerant crops that can yield well in high temperatures could reduce food insecurity by 8 percent. The successful development and adoption of nitrogen-use efficiency technologies, which enable plants to respond better to fertilizers, could reduce the number of food-insecure people in the developing world by an impressive 12 percent.”**

—Howard Minigh, president/CEO, CropLife International

- The African Agriculture Technology Platform (AATP), an initiative announced following the 2012 G8 meeting and subsequently developed under the Memorandum of Understanding between the African Union and CGIAR, continues to evolve, with PIM supporting the development of a digital platform, databases, and methods that can help with the targeting and tracking of technologies. AATP’s main objective is to support adoption of agricultural technology through improved dialogue among stakeholders and better harvesting and sharing of knowledge. PIM also supports the Association of Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and the Conseil Ouest et Centre Africain pour la Recherche et le Développement Agricoles (CORAF) in enhancing the geospatial dimensions of their monitoring and evaluation systems, which will be interoperable with the virtual platform.

- PIM funding for studies on rural advisory services supports linkages between research and development. This work contributes to sustainable intensification through more and better information for farmers seeking to raise their yields and earnings without damaging the resources on their own and their neighbors’ farms. Research results are being used to promote outcomes in innovative extension methods both in East Africa (see case study on page 17 on volunteer farmer trainers) and globally through the leadership of the Global Forum for Rural Advisory Services. New research is ongoing to test the effectiveness of new information and communication technologies (ICT) to understand how to enhance the role of the private sector and to identify approaches and methods that are particularly useful for women farmers.

- PIM co-funded in 2014 a training course on the General Algebraic Modeling System (GAMS)<sup>5</sup> for assessing constraints, tradeoffs, and synergies resulting from adoption of different technological packages. The course was held in Nairobi and attended by over 20 scientists from four CGIAR Centers (World Agroforestry Centre [ICRAF], ILRI, CIMMYT, and ICARDA).

**“...The three days I spent with you were more than worthwhile. I really liked the approach you followed and the examples you developed.”**

—Girma Kassie, agricultural market economist, ICARDA

5 <http://www.gams.com>

## Volunteer Farmer Trainers Expand Options for Advisory Services

*The work described below is a joint effort of PIM, the CGIAR Research Program on Forests, Trees and Agroforestry, the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), East Africa Dairy Development (EADD), and FoodAfrica, a research project funded by the Finnish Ministry for Foreign Affairs.*

Work led by the World Agroforestry Centre and the International Livestock Research Institute shows that volunteer farmer trainers (VFTs) can be effective agents of change, training on average 20 farmers per month. VFTs have an in-depth knowledge of local conditions, culture, and practices; they live in the community, speak the language, and instill confidence in their fellow farmers. VFTs require effective back-up from more fully trained extension agents or subject-matter specialists.

Based on the study results, the East Africa Dairy Development Project (EADD) implemented by Heifer International and funded by the Bill & Melinda Gates Foundation adopted the VFT approach. EADD reaches 315,000 dairy farmers in 4 countries in East Africa.<sup>6</sup> This project is now backstopping over 2,000 VFTs in Uganda and Kenya. The proportion of women farmer trainers in the region went up from 28 percent in 2008 to 33 percent in 2011, as compared to less than 10 percent of female professional trainers and extension staff working on the EADD. The study showed that female trainers are as knowledgeable and effective in reaching farmers as their male counterparts. In Rwanda, the Ministry of Agriculture has adopted the VFT approach and has taken over supervision of 64 of the EADD project's volunteer farmer trainers. In Kenya, EADD is helping dairy producer organizations to coordinate and backstop VFTs.

<sup>6</sup> Heifer is the lead organization in implementation. Other partners in implementation are TechnoServe, ILRI, ICRAF, and African Breeders Services Total Cattle Management.

### How does it work?

Most of the training on better dairy production is practical and happens on demonstration plots maintained on volunteer farmer trainers' land. As trainees embrace improved dairy farming methods, the volunteers pay them neighborly visits to check progress and answer questions. Most of the training involves farmers who are members of a dairy group. On average, each volunteer farmer trainer reaches five villages outside of their own, travelling mostly on foot and covering up to 7 kilometers a day.

### What drives farmer trainers to volunteer?

Our research shows that different farmer trainers have different motivations. When joining, their main motivations are early access to information and technology, altruism, and improved social status and networking. But three years after joining, earning income from selling products and services associated with their training activities also becomes an important motivation. Over half of the farmer trainers in Kenya were earning income from selling (1) fodder seed or planting material or (2) services such as chopping grass using a chaff cutter or preparing silage or hay.

### "It makes me feel good"

"Seeing other farmers in the community improve their productivity as a result of my training gives me satisfaction. It makes me feel good. Also, the knowledge I have gained has increased productivity and my income. Before I became a VFT, I used to get less than 5 liters of milk in a day, but I now get about 40 liters!"

—Mrs. Agatha Buuri from Mweiga, Kieni West District in Kenya

"Service to the community has made me become so famous... wherever I go, farmers refer to me as Mwalimu [Kiswahili for 'teacher']. This recognition has raised my social status,"

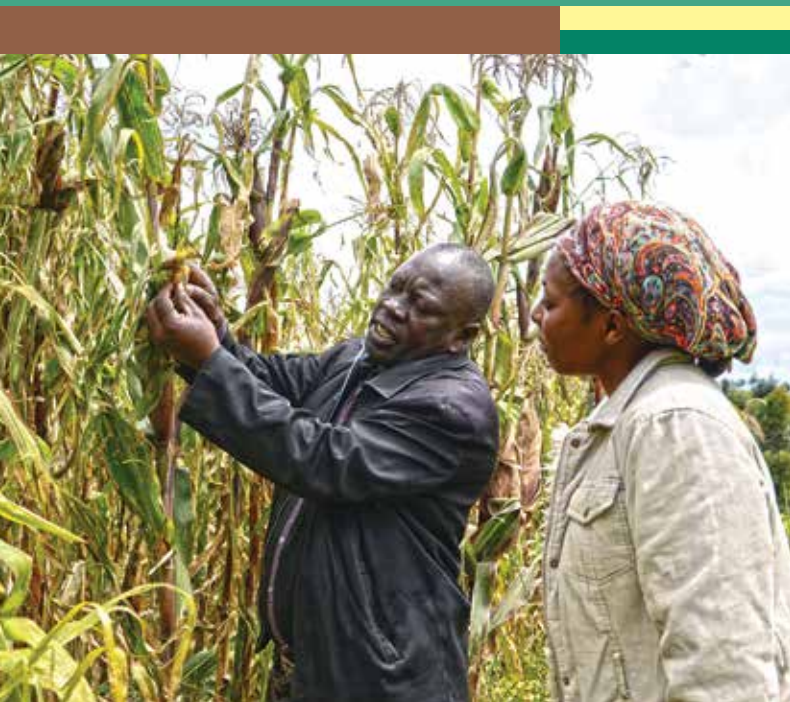
—Mr. Laban Tallam, a volunteer farmer trainer from Kabiyet, Nandi North District in Kenya

"If you have food and your neighbor does not have [food], he will steal it from you. So why not impart skills that can help everyone?"

—Mr. Tamabut Samoei, Kipkaren, Nandi North District

"The success of the volunteer farmer trainer approach is changing the way we think about agricultural extension. Here, the farmers themselves are the principal agents of change in their communities, with extension workers serving as facilitators."

—Steven Franzel, leader, Research on Rural Advisory Services at the World Agroforestry Centre



# POLICY AND PUBLIC EXPENDITURE



**H**ow can governments best direct public investment and manage sectoral and macroeconomic policies to provide appropriate incentives for producers and affordable food for consumers?

PIM works at a number of levels to provide guidance on decisions that national, regional, and local governments make on spending priorities, changes in laws and regulations, and design of public programs. This flagship incorporates the intensive partnership with national clients through IFPRI's country strategy support programs in selected countries, as well as similar engagements of other participating Centers with national partners.

## MEASURING THE POLICY ENVIRONMENT

A wide array of policies (trade, tax, investment, and so on) determines the incentive environment for producers and other actors along supply chains and ultimately affects prices for consumers. Policymakers in developing countries can benefit from objective measures that allow them to see how the constellation of interventions in agriculture affects the competitiveness of their farmers and affordability of food for consumers.

In 2013, PIM joined with the Organisation for Economic Co-operation and Development (OECD), Food and Agriculture Organization of the United Nations (FAO), Inter-American Development Bank (IADB), the World Bank, the African Development Bank, the World Trade Organization, the Asian Productivity Organization, and others to create a common platform for sharing of existing approaches to

measurement and coordination of activities of various stakeholders. The group has also formed a learning network and web-based platform to facilitate sharing of methodologies, data, and results. OECD and PIM co-convene the group twice a year and members interact virtually between meetings. As this effort gains momentum and more developing countries participate through their partnerships with the international organizations, the evidentiary base for quantitative assessment and discussion of the impact of policies will be much strengthened.

## ARAB SPATIAL: AN EVIDENCE BASE FOR A FOOD-SECURE ARAB WORLD

The **Arab Spatial**<sup>7</sup> open-access database and interactive mapping tool was co-launched by PIM and the International Fund for Agricultural Development (IFAD) in February 2013 and updated in January 2014. Arab Spatial includes over 200 indicators of development covering the 22 countries that are members of the Arab League. Data are included on food availability, access, and nutritional outcomes, with added information on the macroeconomy, developments in key sectors and governance, population, access to services, poverty, health, and external shocks and interventions.

<sup>7</sup> [www.arabspatial.org](http://www.arabspatial.org)

Arab Spatial makes available online and in an interactive format high-quality data to support policymaking on food and agriculture in a region that is highly exposed to a variety of potential shocks and vulnerable to their impact. In March 2014, Arab Spatial went to the national level with the launch of **Iraq Spatial** in Baghdad. Coverage under this data base includes the full range of indicators of the parent taken down to the national, subnational, and pixel level. The tool enables users to target policies; for instance, to identify areas most vulnerable to specific manifestations of climate change. The tool is a collaborative effort involving IFPRI and the International Center for Agricultural Research in the Dry Areas (ICARDA), as part of the USAID-funded Harmonized Support for Agriculture Development (HSAD).

Another country-level offspring of Arab Spatial, **Yemen Spatial**, was launched in June 2014. This database is specifically intended to support the implementation of Yemen's National Food Security Strategy (NFSS) and to monitor and evaluate progress in key food security indicators such as calorie deficiency and child stunting.

**“Arab Spatial and related research is starting to show impact at regional and country levels. The tool will further help IFAD in project design and targeting and will make IFAD projects more sustainable and impactful.”**

—Khalida Bouzar, Director of the Near East, North Africa and Europe Regional Division, IFAD

## **FARMING ON WHEELS: SOUTH-SOUTH LEARNING ON MECHANIZATION**

Agricultural growth and transformation entail increased use of both biological inputs and mechanical power. Mechanization has proceeded differentially in different regions and particularly haltingly in Africa south of the Sahara. In June 2014, the National School of Development at Peking University and IFPRI and CIMMYT with support from PIM and USAID organized a workshop on agricultural mechanization in Africa and Asia. The purpose of the workshop was to facilitate south-south exchange of knowledge on mechanization among national researchers, policymakers, and private participants, with a particular focus on the role of the private sector.

According to a recent study by IFPRI of agricultural mechanization in Ghana, medium and larger farmers operating through private rental and custom-hire markets are providing smallholders with mechanization services. The providers purchase their equipment from private dealers and few of the agents in these transactions have significant support from governments. The African experience shown in this study is much like that observed

earlier in Bangladesh, China, and India. Another PIM-supported study investigating the rise of cross-regional agricultural mechanization services in China shows that the most power-intensive stages of agricultural production, such as land preparation and harvesting, have been increasingly outsourced to special service providers that work with small and fragmented farms over a large geographic spread.<sup>8</sup>

The workshop was part of the cross-country research initiative on agricultural mechanization to which PIM and CIMMYT contribute.

**“The workshop was a greater success even than we expected. We gained new insights into the development of agricultural mechanization in areas that differ by crop specificity, agro-ecological conditions, operations, domestic manufacturing capacity, and wider economic growth. The country case studies showcased where mechanization has moved successfully, but also where it has not.”**

—Xinshen Diao, deputy director of the Development Strategy and Governance Division of IFPRI, leader of PIM's Policy and Public Expenditure flagship project.

## **BIOFUEL POLICY IN THE EU: BENEFIT OR BURDEN FOR THE GLOBAL ENVIRONMENT?**

Biofuels have been promoted as a renewable energy environmentally more benign than fossil fuels. A number of developed countries, including those in the EU, have mandated use of a proportion of biofuel in blended fuel products. Despite the merits of biofuels, concerns have been raised about the environmental implications when land is converted to biofuel production from other uses and about the impact of biofuel mandates on the level and volatility of prices of primary food commodities. IFPRI, with the support of PIM, has undertaken analysis to inform the debate on biofuels. In one of the studies, analysts used a global computable general equilibrium model (the MIRAGE model) to estimate the impact of EU biofuel policies. The results have been used by participants in the EU debates to propose reforms in the EU: the EU's Environment Committee voted on July 11, 2013, to set a cap on the amount of energy produced from food and energy crops while encouraging the use of advanced biofuels, such as straw and algae, and electric vehicles. The European Parliament's plenary vote confirmed this measure in September 2013. A subsequent proposal to limit further

8 Yang, J., Z. Huang, X. Zhang, and T. Reardon. 2013. “The Rapid Rise of Cross-Regional Agricultural Mechanization Services in China.” *American Journal of Agricultural Economics* 95 (5): 1245–1251.

Europe's use of food-competing fuel crops was stalled by a vote on the European Parliament's environment committee in mid-October. Debate continues, and IFPRI's work on the topic remains in high demand.

## **WORKING ON THE GROUND: ETHIOPIA STRATEGY SUPPORT PROGRAM**

Ethiopia Strategy Support Program (ESSP) was established in 2004 by the Ethiopian Development Research Institute and IFPRI to support the Ethiopian government in design and implementation of a national agricultural development strategy. The program is now in its third phase and part of PIM's portfolio (since 2012). The two major donors are the United States Agency for International Development (USAID) and the UK Department for International Development (DFID).

Current ESSP research activities include work on productivity, adoption of technology, agricultural transformation, markets and value chains, price movements, risk, insurance, investment, land and water management, poverty, nutrition, and safety nets. Analysis by the active

team of researchers from IFPRI and EDRI supports core programs of the Government of Ethiopia, including the Productive Safety Net Program (PSNP), Agricultural Growth Program (AGP), Feed the Future initiative, and Social Cash Transfer Program (SCTP).

The ESSP team recently responded to an urgent request from the Government of Ethiopia to assess the structure and performance of the value chain of teff. Although teff is a crop specific to Ethiopia, its substitutability for other grains and its importance in consumption and rural incomes give it regional importance. The finding that teff markets function quite efficiently provided important input into changes in marketing policy that were under consideration at the time.

In addition to its analytical agenda, ESSP is very active in strengthening capacity of the local partners and researchers. By the end of the program's second phase (at the end of 2013), more than 1,200 people had participated in various training sessions and workshops organized by ESSP.



# VALUE CHAINS

If connections between producers and consumers are weak or costly, farmers earn less and shoppers pay more. How can market links be strengthened when distances are great, roads and communications poor, producers and consumers many and rarely organized, and changes in policy frequent?



This flagship is designed to help systematize research on value chains, initially within CGIAR, but subsequently more broadly within the wider development profession. The work focuses on generalizable lessons about interventions that work well under various circumstances. The flagship has close links with Flagships 2 (Science Policy and Incentives for Innovation) and 4 (Policy and Public Expenditure), because some of the weak points in value chains can be addressed through policy and regulatory reforms that reduce transactions costs, through better targeted public spending, or both.

Members of the PIM value chains team have created a community of practice and innovative ways to share their research findings, tools, and methods.

## VALUE CHAINS KNOWLEDGE CLEARINGHOUSE: SHARING RESEARCH METHODS AND GOOD PRACTICE

The Value Chains Knowledge Clearinghouse, an initiative led by PIM with inputs from Bioversity International, CIAT, CIP, ICRAF, ICRISAT, IFPRI, IITA, and ILRI, provides a comprehensive, easily accessible repository of research methods and good practice in the assessment of value chains' performance. Some of the tools are already used by implementation partners, such as IFAD and the US Feed the Future initiative, and other partners have expressed interest.

The Clearinghouse<sup>9</sup> addresses the interests of five types of users: generalists, farmers, private actors, development practitioners, and researchers. Each section presents tools and good practice selected for the specific audience, instructions on application of the tools, a calendar of events, and a network for communication. Materials posted on the Clearinghouse are intended to contribute toward making value chains more efficient and more inclusive of smallholders, women, and marginalized groups.

## WHAT IS IN THE TOOLBOX?

One of the tools featured on the Clearinghouse is the 5Capitals approach developed by ICRAF (*5Capitals: A Tool for Assessing the Poverty Impacts of Value Chain Development* by J. Donovan and P. Stoian). The authors of this manual analyze minimum endowments of five types of capital necessary for smallholders to benefit significantly from value chain interventions.

*“We found that rural households require a minimum level of asset endowments to benefit from value chain developments. Households above a certain ‘threshold’ of capitals benefited the most from value chain development, while those below it experienced minimal impacts.”*

— Jason Donovan,  
World Agroforestry Centre

<sup>9</sup> [www.tools4valuechains.org](http://www.tools4valuechains.org)

Assessing Impacts of Value Chain Development on Poverty: A Case-Study Companion to the 5Capitals Tool and three related journal articles appeared in 2014 on the topic of the 5Capitals approach.

“The 5Capitals tool, developed jointly by an alliance of research and development organizations, addresses this shortcoming by proposing an asset-based approach to assess the poverty impacts of VCD. The tool has been tested through 23 case studies carried out over two iterations in Asia, Africa, Latin America and North America.”

— Assessing Impacts of Value Chain Development on Poverty: A Case-Study Companion to the 5Capitals Tool



Source: 5Capitals: A Tool for Assessing the Poverty Impacts of Value Chain Development

### Key household and business assets for value chain development (VCD) impact assessment

	HOUSEHOLD ASSETS (SMALLHOLDERS)	BUSINESS ASSETS (SMALLHOLDER-LINKED ENTERPRISE)
Natural capital	Stock of environmentally provided assets, including soil health, forest cover and diversity, minerals, water, stock of plants or animals	Only applies if the enterprise has its own land for sourcing its raw materials
Human capital	Capacities and skills, formal education, nutritional and health status	Business managements and technical capacities and skills
Social capital	Rules, norms, obligations, reciprocity and trust embedded in social relations, structures or arrangements that enable those who share them to achieve goals they could not have achieved individually	
Physical capital	Tools, equipment, machinery, buildings, and other productive resources	
Financial capital	Cash, savings, equity, credit and other financial resources	

Source: 5Capitals: A Tool for Assessing the Poverty Impacts of Value Chain Development, page 17.

## GENDER IN VALUE CHAINS

Many women in developing countries are employed in agricultural activities off the farm and more will join their ranks in the future. Whether this employment is beneficial or a manifestation of discrimination is not yet well known.<sup>10</sup> Using quantitative tools to examine the role of gender in value chains can help to identify how gender affects the opportunities for and conditions of employment, as well as wages and earnings. When used together with existing qualitative tools, quantitative analysis can help researchers identify critical issues and bottlenecks in order to pinpoint effective interventions.

10 Maertens, M. and J. F. M. Swinnen. 2009. “Are African High-Value Horticulture Supply Chains Bearers of Gender Inequality?” Paper presented at the FAO-IFAD-ILO Workshop on Gaps, Trends and Current Research in Gender Dimensions of Agricultural and Rural Employment: Differentiated Pathways out of Poverty, Rome, March 31–April 2, 2009. [www.fao.org/uploads/media/Gender%20issues.pdf](http://www.fao.org/uploads/media/Gender%20issues.pdf).

The Value Chain Knowledge Clearinghouse features tools for conducting gender-specific analysis<sup>11</sup> to show the incidence and impact of segregation by gender at different points in the chains. The Toolkit includes tools that assess

- how remuneration differs between men and women along the value chain;
- how men’s and women’s time expenditures differ and how time use has changed;
- how rates of participation in various occupations differ between men and women; and
- how access to employment and working conditions differ between men and women.

Case studies that implement these tools are currently underway in Honduras and Cambodia.

11 <http://researcher.tools4valuechains.org/tool-family/gender-value-chains>



# SOCIAL PROTECTION

Some people will be left out of even a robust rate of agricultural growth—for example, households with little or no land, individuals suffering from illnesses or disabilities, or those living in marginal areas that do not share in technical advancement. In addition, many of the world’s poorest households live under great risk, related (for example) to weather, price variability, health, or local conflicts. When shocks hit the very poor, people often have no choice other than depleting assets and reducing consumption, thereby reducing current and future welfare. The risk of such shocks also discourages poor people from adopting potentially more productive technologies.

Safety nets can break this cycle of fear and destitution, allowing households and individuals to accumulate and retain physical, financial, and human assets that help boost their productivity and livelihoods.

In this flagship, researchers examine the various instruments suitable for different groups requiring the assistance of safety nets and explore ways that governments can employ them to complement traditional coping mechanisms. Attention is accorded to design features that benefit both women and men.

Work under this flagship also examines complementarity between social safety nets and programs promoting agricultural growth. Particular areas of focus include the role of safety nets in asset creation, their linkage with investment in agriculture, the scope for improving the cost-effectiveness of social transfers in rural areas, and their impact on poverty and food security. Work on insurance is closely linked to that of social protection, and researchers under this flagship examine the interaction between the two, as well as factors affecting rates of take-up of insurance products

The outputs of this work include advice on the design and coverage of social protection programs. For example, the Government of Ethiopia and the consortium of donors supporting Ethiopia’s Productive Safety Nets Programme (PSNP) are incorporating the results of the PSNP impact assessment, conducted by IFPRI with funding from PIM, into the re-design of the program. These findings should contribute to reinforcing aspects of the program that work well (for example, targeting), while improving other aspects (for example, timeliness of payments and linkages to complementary programs aimed at increasing rural incomes). The Government of Bangladesh has used the Bangladesh Integrated Household Survey (BIHS) dataset, prepared with the assistance of the Poverty, Health, and Nutrition Division of IFPRI and funding from PIM, to revamp its safety-net system in order to target and reach the poorest households and individuals more effectively. The resulting program is expected to be supported by the World Bank. By contributing to program design and implementation, the use of the BIHS dataset will contribute to effective and efficient social protection interventions.



## Featured Publications

### “Cash, Food, or Vouchers? Evidence from a Randomized Experiment in Northern Ecuador”

This paper by Melissa Hidrobo (IFPRI), John Hoddinott (IFPRI), Amber Peterman (University of North Carolina), Amy Margolies (IFPRI), and Vanessa Moreira (The World Bank), published in the March 2014 edition of the *Journal of Development Economics*, compares the impacts and cost-effectiveness of three different approaches to food assistance by analyzing a program targeting female Colombian refugees in northern Ecuador:

*“The debate over whether to provide food assistance, and the form that this assistance should take, have a long history in economics. Despite the ongoing debate, little rigorous evidence exists that compares food assistance in the form of cash versus in-kind. This paper uses a randomized evaluation to assess the impacts and cost-effectiveness of cash, food vouchers, and food transfers. We find that all three modalities significantly improve the quantity and quality of food consumed. However, differences emerge in the types of food consumed, with food transfers leading to significantly larger increases in calories consumed, and vouchers leading to significantly larger increases in dietary diversity.”*

### “Cash Transfers and Domestic Violence”

This article by Melissa Hidrobo (IFPRI) and Lia Fernald (School of Public Health, University of California, Berkeley) published in January 2013 by the *Journal of Health Economics*, analyses how an increase in a woman’s income through the Ecuadorian cash transfer program to mothers affected domestic violence:

*“Violence against women is a major health and human rights problem yet there is little rigorous evidence as to how to reduce it. We take advantage of the randomized roll-out of Ecuador’s cash transfer program to mothers to investigate how an exogenous increase in a woman’s income affects domestic violence. We find that the effect of a cash transfer depends on a woman’s education and on her education relative to her partner’s. Our results show that for women with greater than primary school education a cash transfer significantly decreases psychological violence from her partner. For women with primary school education or less, however, the effect of a cash transfer depends on her education relative to her partner’s. Specifically, the cash transfer significantly increases emotional violence in households where the woman’s education is equal to or more than her partner’s.”*



# NATURAL RESOURCE PROPERTY REGIMES



Property rights play a central role in the management and use of natural resources such as land, water, forests, and biodiversity. Property regimes determine who has access to property and the responsibility for managing it. Property rights also create incentives or disincentives for sustainable management and governance of natural resources.

Despite the importance of property rights, millions of poor people lack secure tenure over land, forests, water, and other natural resources. Women and those who depend on common property are particularly likely to have insecure tenure. PIM research teams are addressing this problem by highlighting the importance of property rights, and assessing the impact of various forms of policy reforms and modes of implementation on different resource users.

## CAPRI

The Collective Action and Property Rights (CAPRI)<sup>12</sup> program, part of the PIM portfolio under Flagship 7, is one of several inter-Center initiatives of the CGIAR Consortium created to foster research and promote collaboration on institutional aspects of natural resource management. CAPRI contributes to policies and practices that reduce rural poverty by analyzing institutions that influence the efficiency, equity, and sustainability of natural resource use and developing options for change.

The CAPRI program has collaborated with the CGIAR Research Program on Climate Change, Agriculture and Food Security to help understand and

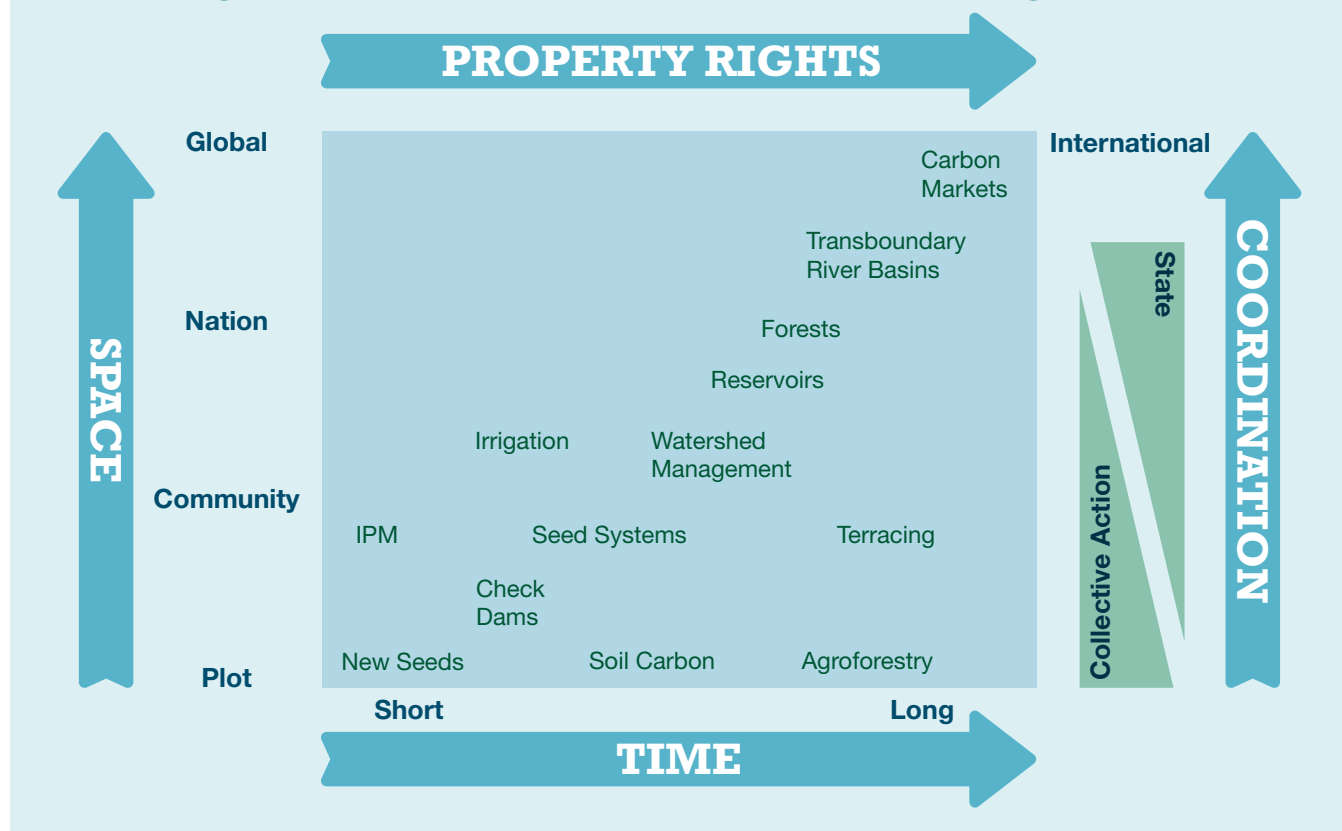
support appropriate institutions for adoption of climate-smart agricultural practices. The conceptual framework (CAPRI Working Paper 114, 2013) shows how many of the adaptation practices promoted as climate-smart have long time horizons between investment and returns; these are unlikely to be adopted by those who do not have secure tenure rights. Similarly, practices that apply at the landscape level require some form of coordination, often through collective action. Recognizing the importance of these key institutions can help ensure that these practices are adopted in an inclusive manner, by smallholders and women farmers. Other CAPRI working papers on this theme discuss how this has played out in practice in development interventions

In addition to developing new research and syntheses, CAPRI works to ensure that the lessons from the research and syntheses are passed on to students and non-specialists. One of the major tools for this is Resources, Rights, and Cooperation: A Sourcebook on Property Rights and Collective Action for Sustainable Development<sup>13</sup>, with an accompanying set of posters for educators, trainers, practitioners, policymakers, and researchers in the general area of

<sup>12</sup> [www.capri.cgiar.org](http://www.capri.cgiar.org)

<sup>13</sup> <http://www.capri.cgiar.org/sourcebook.asp>

## Role of Property Rights and Coordination for Agriculture and Natural Resource Management



Source: Ruth Meinzen-Dick, IFPRI

collective action and property rights. In 2013, a Chinese translation of the book was developed (adding to the English and Spanish versions already available on the CAPRI website) and used in a university course, released in hard copy, and optimized for viewing on iPad and iPhone. The sourcebook was used as the basis for a preconference training course on “Introduction to the Commons” at the global conference of the International Association for the Study of the Commons (IASC) in 2013. The complete English version of the sourcebook was downloaded over 2,000 times in 2013 and the Spanish version over 600 times, in addition to thousands of downloads of the book’s individual chapters. Materials from the book have been included in university curricula at undergraduate and graduate levels.

### LAND GOVERNANCE

To identify effective ways to strengthen land rights of the poor in various contexts, PIM research on land tenure is linked to the Land Governance Assessment Framework (LGAF) through a country-led process in collaboration with the World Bank. Coverage of implementation of LGAF expanded into new countries, including Benin, the Democratic Republic of the Congo, The Gambia, and Uganda in 2013, along

with demand-driven policy relevant research to inform land policies and address key knowledge gaps in selected African countries. The project helped Nigeria’s Presidential Technical Committee for Land Reforms (PTCLR) design an impact evaluation baseline survey of 4,000 households from the South-West region of Nigeria. In Ethiopia, the research team completed a survey of 550 households from the northern highlands. Data was also collected from 400 land conflict mediators to assess the level of both perceived tenure (in-)security and demand for improved land rights protection from the public. To investigate the national-level impact of the low-cost land certification and perceived tenure insecurity in the country, the land tenure module was incorporated into the 2013 Agricultural Growth Program (AGP) and data was collected from 8,000 households in the 80 AGP districts in the country. By analyzing the datasets from Ethiopia and Nigeria, research in 2014 addressed: women’s land rights and intra-household bargaining power in Nigeria by looking at perception and practice of inheritance; gender-disaggregated tenure (in-)security and demand for land certificates in Nigeria; land administrative reforms in Ethiopia and the demand for the second-stage rural land-use certification; and the role of LGAF in mainstreaming the Africa-wide CAADP process.

## GAAP: “AN OPPORTUNITY TO DREAM BIG”

The Gender, Agriculture, and Assets Project (GAAP)<sup>14</sup>, jointly led by the International Food Policy Research Institute (IFPRI) and the International Livestock Research Institute (ILRI) with funding from the Bill & Melinda Gates Foundation and PIM, aims to reduce the gap between men’s and women’s use, control, and ownership of assets by evaluating how and how well agricultural development programs build women’s assets. Assets are broadly defined to include natural, physical, financial, human, social, and political capital. The project works with its eight partner organizations from Africa south of the Sahara and South Asia to better understand gender and asset dynamics in agricultural development programs.

In May 2014, GAAP hosted an Outreach Workshop on Addressing Gender, Agriculture, and Assets in Agricultural Development Projects to present lessons learned during the four years of its work (2010–2014).

The eight interventions under GAAP assessed to date show reciprocal relationships between gendered control of assets and adoption of technologies, and offer practical suggestions for design of programs to achieve desired objectives. GAAP is ready to enter its second phase of implementation, in which greater emphasis will be placed on the role of gendered control of assets in achieving nutritional outcomes. The program will accordingly migrate to A4NH in 2015.

## ENHANCING WOMEN’S ASSETS TO MANAGE RISK UNDER CLIMATE CHANGE

This project, with support from the Federal Ministry for Economic Cooperation and Development, Germany, explores ways to help poor women farmers manage risks and

14 [www.gaap.ifpri.info](http://www.gaap.ifpri.info)

adapt to climate change. As part of this work, IFPRI researchers have developed a theoretical framework (CAPRI Working Paper No. 109, 2013)<sup>15</sup> for community-based adaptation to climate change, including the gender-differentiated priorities for adaptation, and have explored organizational and institutional needs for gender-sensitive climate risk management (IFPRI Discussion Paper 01279, 2013)<sup>16</sup> in Bangladesh, Ethiopia, Kenya, and Mali. The project finds that women have limited access to agricultural assets, including productive land, inputs, and technologies as well as less access to climate information than male farmers. In cases where women have similar access, they tend to be as likely, or in some cases more likely, to implement climate change adaptation interventions as male farmers. Thus, reducing barriers to these important agricultural assets for women will be essential not only to increasing agricultural productivity sustainably but also to improving the resilience of those with the least capacity to adapt to climate change.

## CONTRIBUTING TO MONITORING AGROBIODIVERSITY

As part of a PIM-funded activity led by Bioversity, a common framework for monitoring agrobiodiversity, including indicators and metrics at four different scales, was developed and discussed at the experts meeting held in Huancayo, Peru, in November, 2013<sup>17</sup>. The framework was used by the CGIAR Research Program on Roots, Tubers and Bananas (RTB) to prepare an in situ conservation flagship project for roots, tubers, and bananas and is expected to form the basis for developing a global network for monitoring agricultural biodiversity.

15 <http://www.capri.cgiar.org/pdf/capriwp109.pdf>

16 <http://www.ifpri.org/publication/organizational-and-institutional-issues-climate-change-adaptation-and-risk-management>

17 <http://www.nuscommunity.org/resources/our-publications/publications/final-report-international-expert-meeting-development-of-systematic-agro-biodiversity-monitoring-ap/>

**“GAAP created an opportunity to dream big. This project represents a shift away from a focus on just income towards research on how agricultural development interventions are likely to affect the gendered distributions of assets.”**

—Agnes Quisumbing,  
GAAP leader, senior research  
fellow, IFPRI

# CROSSCUTTING GENDER, PARTNERSHIPS, AND CAPACITY BUILDING

**“At USAID, we use the Women’s Empowerment in Agriculture Index to support implementation of the US Government’s global hunger and food security initiative, Feed the Future. We especially appreciate the emphasis that PIM gives to gender work and applaud the design team’s openness to learn and adjust to field conditions. The Index and the emphasis on analyzing sex-disaggregated data more broadly create new evidence on how best to break through gender-based barriers to growth.”**

—Rob Bertram, chief scientist, Bureau for Food Security, USAID

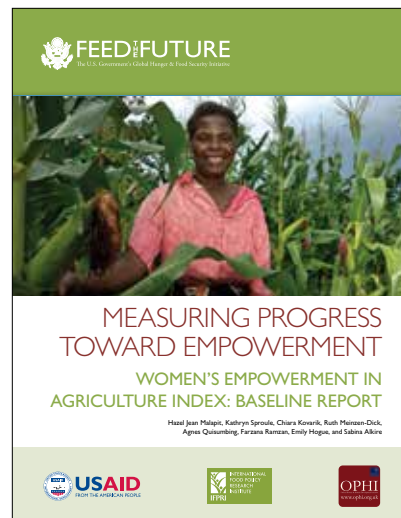
All the flagships address gender, partnerships, and capacity building, but PIM also supports free-standing and crosscutting work in each of these areas.

## GENDER

### METRICS OF WOMEN’S EMPOWERMENT

The Women’s Empowerment in Agriculture Index (WEAI)—part of the PIM portfolio and a joint effort of IFPRI, the Oxford Poverty and Human Development Initiative (OPHI), and USAID’s Feed the Future initiative—is the first comprehensive and standardized measure to capture women’s empowerment and inclusion in the agriculture sector. The baseline report<sup>18</sup>, released in May 2014, provides a comprehensive analysis of women’s empowerment in agriculture in 13 countries across 5 regions and the relationships between the WEAI and various outcomes of interest to the Feed the Future initiative. The baseline results reveal that, across most countries and regions, the greatest constraints to women’s empowerment in agriculture are a lack of access to credit and the power to make credit-related decisions, excessive workloads, and a low prevalence of group membership. Although the magnitude of women’s disempowerment is greater than that of men, men face similar barriers.

<sup>18</sup> <http://www.ifpri.org/publication/measuring-progress-toward-empowerment>



*“There is consistent and credible evidence that when the status of women is improved, agricultural productivity increases, poverty is reduced, and nutrition improves, making the WEAI a crucial tool for monitoring progress towards these objectives.”*

—Measuring Progress Towards Empowerment

In addition to being used in the monitoring and evaluation of all country work under USAID’s Feed the Future initiative, the WEAI is now being adopted and adapted by a wide range of research and development



organizations, such as IFAD, CARE, and the Rwanda Agricultural Board's Nutrition, Market and Gender Survey.

To facilitate adoption of the tool, the WEAI Resource Center<sup>19</sup> released a number of training materials in 2013, including an instructional guide<sup>20</sup> on how to implement, calculate, and analyze the index; an introductory video<sup>21</sup>; and several webinars and tutorials on calculating the WEAI indicators<sup>22</sup>, using Stata .do<sup>23</sup> files, and implementing the time-use module<sup>24</sup>. Using WEAI data, researchers analyzed the role of women's empowerment in agriculture, production diversity, and nutrition in Nepal<sup>25</sup> and how women's empowerment in agriculture affects food security in Bangladesh<sup>26</sup>.

Following feedback received at the WEAI Learning Event held in November 2013, the tool itself is currently being reviewed and refined to ensure that all modules are capturing the desired information most effectively. Operational colleagues in particular requested simplification of the survey materials, which is under way.

19 <http://www.ifpri.org/book-9075/ourwork/program/weai-resource-center>

20 [http://www.ifpri.org/sites/default/files/weai\\_instructionalguide.pdf](http://www.ifpri.org/sites/default/files/weai_instructionalguide.pdf)

21 <https://www.youtube.com/watch?v=KaPstZAYWas#t=31>

22 <http://agrilinks.org/events/webinar-ftfs-womens-empowerment-agriculture-index-weai>

23 <http://agrilinks.org/events/webinar-ftfs-womens-empowerment-agriculture-index-weai>

24 <https://www.youtube.com/watch?v=jr8ebiKUbQ&feature=youtu.be>

25 <http://www.ifpri.org/sites/default/files/publications/ifpridp01313.pdf>

26 <http://www.ifpri.org/sites/default/files/publications/ifpridp01297.pdf>

## BEST PRACTICES IN COLLECTING SEX-DISAGGREGATED DATA

Reducing gender disparities is widely recognized as a critical issue in agriculture and rural development, yet analysis to guide action is often hampered by a lack of sex-disaggregated data. In some cases the role that gender plays is fairly straightforward, but the approaches to securing change are not yet clearly identified. In others little analysis has been conducted, and the interrelation between gender outcomes and policy is poorly understood. By developing guidelines to improve the collection and analysis of sex-disaggregated data on issues of importance to CGIAR, PIM is working to narrow the gender knowledge gap. In 2014, the CGIAR Gender and Agriculture Research Network approved a set of guidelines drafted under the leadership of PIM to inform collection of sex-disaggregated data. The work on collection of sex-disaggregated data includes experiments on how to best to frame questions and whom to interview.

In related work, the Ethiopian Ministry of Agriculture's Women's Affairs Directorate, the Ethiopian Institute of Agricultural Research, the Ethiopian Agricultural Transformation Agency, and IFPRI brought together key players in Ethiopia's agriculture system in July 2014 to shape future gender analysis in the country. Experts discussed the development of gender-based baseline indicators for the next phase of Ethiopia's Growth and Transformation Plan (GTP) and methods for collecting sex-disaggregated data for the GTP and other national priorities.

Work within this flagship is also contributing to the design of indicators for secure land rights for women and men to be included among the Sustainable Development Goals in the post-2015 Development Agenda. Researchers supported by PIM worked with the Landesa Rural Development Institute (a nonprofit organization that partners with governments and local organizations to secure legal land rights for world's poorest families) to analyze the feasibility of collecting data on the proposed indicators. Landesa is using this report to advocate for the adoption of the proposed indicators.

## PARTNERSHIPS

PIM researchers collaborate with many global, national, and local partners to achieve common goals in research, outreach, and implementation.

A few examples of partnerships under PIM, in addition to those already mentioned on the previous pages, are shown below:

- PIM is leading a CGIAR-wide initiative for geo-spatial mapping of all Consortium activities, thus supporting creation of an important tool to facilitate coordination of multiple partners. The first round of mapping is complete and has been used to identify locations of synergy on the ground for CRPs and key partners, such as CATIE (Centro Agronómico Tropical de Investigación y Enseñanza) in Latin America and the sub-regional organizations in East and West/Central Africa—ASARECA and CORAF, respectively.
- In addition to strong partnerships in the MENA region with IFAD, GIZ, UN-ESCWA, and WFP, the team working on Arab Spatial has collaborated with the Egyptian Central Agency for Public Mobilization and Statistics (CAPMAS) and with the Yemen Economic Modeling Group hosted by the Yemen Ministry of Planning and International Cooperation.
- The partnership between PIM and CIRAD continues to grow, with collaboration on geospatial work in Africa south of the Sahara and joint contributions to inter-agency study of the future of the African Drylands.
- PIM and the CGIAR Research Programs on Climate Change, Agriculture and Food Security (CCAFS) have joined efforts to bring together experts from across CGIAR at the International Food Policy Research Institute in January 2014 to discuss weather index-based insurance and how it can influence adoption of technology and enhance resilience to shocks. The two-day workshop established a foundation for continued collaboration between the teams of the two CRPs.

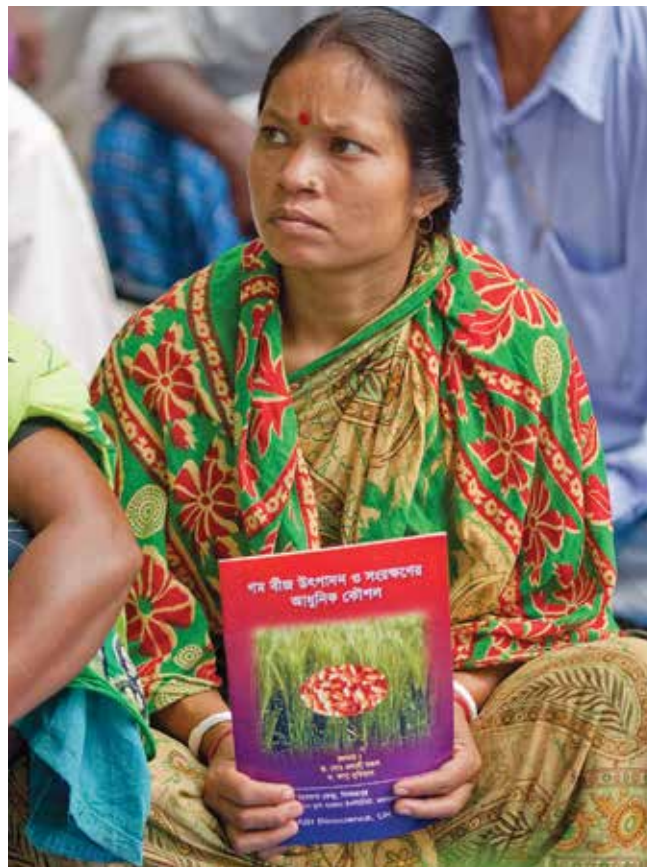
To facilitate management of partnerships and to better understand how partnerships contribute to achievement of

outcomes, the PIM Program Management Unit designed a reporting template to capture information on key partnerships within the program. Data collected through annual submissions to the template will provide a basis for subsequent analysis of the contribution of partnerships to the program.

## CAPACITY BUILDING

PIM builds capacity in several ways: by establishing research teams that include both senior and junior staff from a range of institutions; by developing tools and methods, and training people to use them; and through outreach activities including conferences, workshops, trainings, and publications. Examples, not already mentioned above, include the following:

- The new Central Asia Research and Capacity Strengthening Program is implemented by the International Food Policy Research Institute and the University of Central Asia, in collaboration with the CGIAR Research Programs on Policies, Institutions, and Markets (PIM) and Agriculture for Nutrition and Health (A4NH) and with the Eurasian Center for Food Security at Moscow State University. The program convened a research conference in Bishkek, Kyrgyzstan, in April 2014 and has held several technical training sessions for specialists from the region.







■ The African Growth and Development Policy Modeling Consortium (AGRODEP) project, facilitated by IFPRI with support from PIM, provides technical and financial support to a growing number of African researchers. As of July 2014, AGRODEP had 147 members; the project’s collection of datasets and models continues to expand. Members receive training on topics covering data methods and estimation and simulation models and research grants for innovative research.

Many activities that PIM supports serve multiple purposes: networking, capacity building, and outreach. The IFPRI 2020 Conference on Building Resilience for Food and Nutrition Security in Addis Ababa in May 2014 was one of the central and biggest capacity-building and outreach events supported by PIM over the last 18 months. The 2020 global policy consultation initiative was designed to build

capacity, influence, and catalyze action by policymakers, nongovernmental organizations, the private sector, educators, researchers, and communities to incorporate resilience into the post-2015 Development Agenda. More than 140 experts and practitioners spoke and shared their experience and insights during the conference. Side events, open to all participants, showcased research initiatives, programs, and tools related to building resilience for food and nutrition security. The Knowledge Fair, a forum for sharing ideas and collaborating across sectors and areas of expertise, was transformed into an interactive knowledge exchange after the conference, thus expanding the capacity building impact of the event.





# Looking to the Future

**M**uch of the work initiated in the first phase of the PIM program (2012–2014) will extend into 2015–2016 and beyond. We will continue to streamline the program and seek greater focus by merging much of the work on generation and adoption of technology into a single flagship. We will add to the program in selected areas that either have emerged as priorities of our partners and clients, or have been recommended by our Science Policy and Advisory Panel, or both. Among the areas either newly added or receiving heightened attention are the following:

- Youth employment in rural Africa and South Asia, including access of young people to land
- Measuring, managing, and reducing post-harvest losses
- Food policy and urbanization;
- The political economy of price shocks and protecting the urban poor
- Structural change and agriculture in late-transforming countries

We will continue to mainstream attention to gender in the existing and new work. In addition we will focus further on collecting and working with sex-disaggregated data; this work will include methodological experiments on how to conduct surveys. We will continue to invest in the Women's Empowerment in Agriculture Index to analyze the data it yields and also to simplify it for wider operational application. We will continue to interrogate prevailing myths about gender and agricultural and rural development in order to assure that interventions are based on confirmed empirical findings rather than untested assumptions.

Drawing on the foundation laid during the past three years, we will use a range of methodological approaches to show the contribution of policy-oriented research to development outcomes. This work will address questions frequently asked about the concrete impact of analysis of policies, institutions, and markets and will also assist us in managing the program.

During the years ahead, we will continue to build strong links with new and existing partners, including other CGIAR Research Programs, policymakers, development agencies, NGOs, the private sector, and civil society organizations.



# 2013 Financial Summary

## OUR FINANCIAL “WINDOWS”

### Window 1 (W1):

Funders contribute untied support to the CGIAR Fund that then gets allocated by the Fund Council to CGIAR Research Programs (CRPs) and to Consortium activities.

### Window 2 (W2):

Funders provide support for specific CRPs through the CGIAR Fund.

### Window 3 (W3):

Funders provide support for specific CGIAR Center projects through the CGIAR Fund.

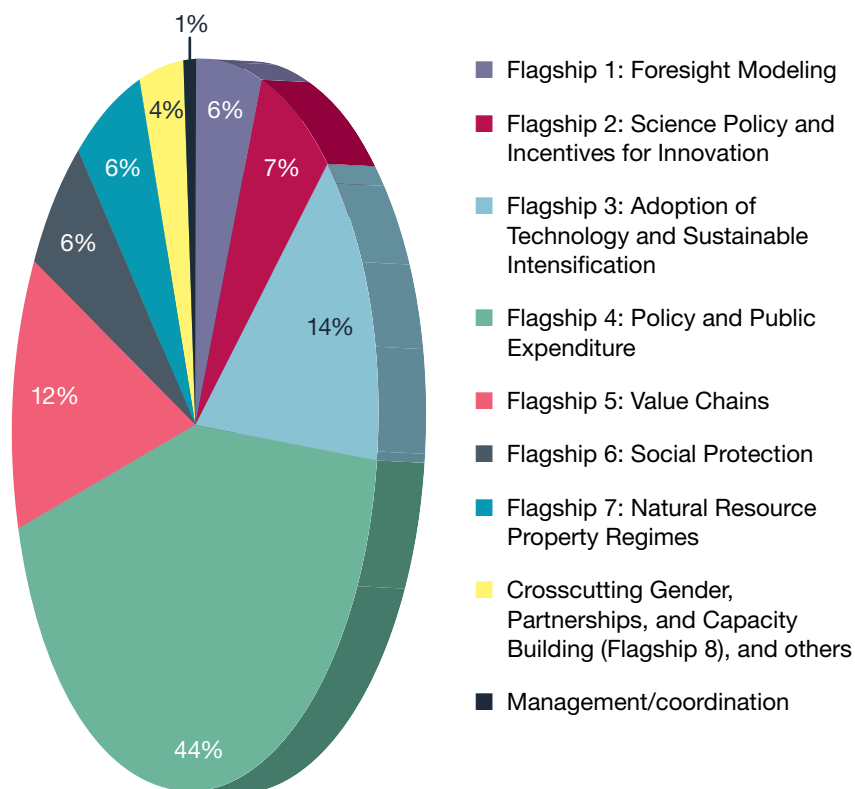
**Bilateral** funders provide specific project support directly to the CGIAR Centers.

In 2013, PIM received US\$23.9 million of windows 1 and 2 (W1-2) funding as per the CGIAR Financing Plan. This amount, added to the US\$11.6 million carryover from 2012, provided an available total of US\$35.5 million. Expenditures from W1-2 of US\$27 million, that is, 76 percent, reflect cautious growth in the program and prudent management in light of uncertainties in annual allocations. Unspent W1-2 funds in any year are pooled with new receipts in the following year to smooth annual variations in revenue and facilitate strategic refocusing. Window 3/bilateral expenditures represent two thirds of the US\$95 million total expenditures under PIM in 2013.

The amount of funding that went to non-CGIAR partners in 2013 was US\$25 million, or just over one quarter of total PIM expenditures.

The very large volume of work devoted to policy analysis and the assessment of public expenditure at the national and regional levels (Flagship 4) reflects the demand of clients and partners for this work. Most of Flagship 4 is funded directly and bilaterally, but it draws on and applies conclusions developed under the other flagships that receive a higher proportion of funds through windows 1 and 2.

### PIM 2013 expenditure summary



Note: In addition to crosscutting gender work, gender research is integrated into all flagships, representing approximately 15 percent of the overall budget.

## PIM 2013 expenditure summary

FLAGSHIP PROJECTS	W1/W2 (THOUSAND US\$)	BILATERAL/W3 (THOUSAND US\$)	TOTAL (THOUSAND US\$)
Flagship project 1: Foresight Modeling	3,868	2,259	6,127
Flagship project 2: Science Policy and Incentives for Innovation	539	6,541	7,080
Flagship project 3: Adoption of Technology and Sustainable Intensification	4,599	8,174	12,772
Flagship project 4: Policy and Public Expenditure	5,583	35,764	41,347
Flagship project 5: Value Chains	5,586	5,709	11,295
Flagship project 6: Social Protection	2,179	3,035	5,213
Flagship project 7: Natural Resource Property Regimes	1,933	3,883	5,815
Crosscutting Gender, Partnerships, and Capacity Building (Flagship project 8) and others	1,662	2,119	3,782
Management/coordination	1,069	0	1,069
Contingency and new activities (unallocated)	7	278	284
<b>Total</b>	<b>27,024</b>	<b>67,762</b>	<b>94,786</b>

# PIM 2013–2014 Financial Contributors

## THE WORK OF THE CGIAR RESEARCH PROGRAM ON POLICIES, INSTITUTIONS, AND MARKETS IS CARRIED OUT WITH FUNDING FROM THE FOLLOWING (W1-2-3):

CGIAR Fund Donors ( <a href="http://www.cgiarfund.org/FundDonors">http://www.cgiarfund.org/FundDonors</a> )	Denmark	Russia
Australia	European Commission	South Africa
Bill & Melinda Gates Foundation	India	Sweden
Canada	International Fund for Agricultural Development (IFAD)	Switzerland
China	Netherlands	United States Agency for International Development (USAID)

**We also gratefully recognize other funders that support specific bilateral projects that are part of PIM.**

# Who We Are

(AS OF JULY 2014)

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