3. Program Highlights: Seven Flagship Projects

PIM is organized around seven flagship projects: Foresight Modeling; Science Policy and Incentives for Innovation; Adoption of Technology and Sustainable Intensification; Policy and Public Expenditure; Value Chains; Social Protection; and Natural Resource Property Regimes. Each of the flagships has its own problem statement and related intermediate development outcomes (IDOs) (see box on p. 11). The IDOs express results that will contribute to the System Level Outcomes (SLOs) for CGIAR as a whole, as shown in Figure 4.

Occasionally, PIM's research results have immediate and recognizable impact. For example, the assessment undertaken in 2012 of the Government of Tanzania's ban on exports of grain showed damage concentrated in the country's grain belt, with clear implications for producers' incentives to plant the next year's crop. The prime minister's announcement of the lifting of the ban, in September of that year, cited the findings of several studies, including the work of IFPRI supported by PIM.

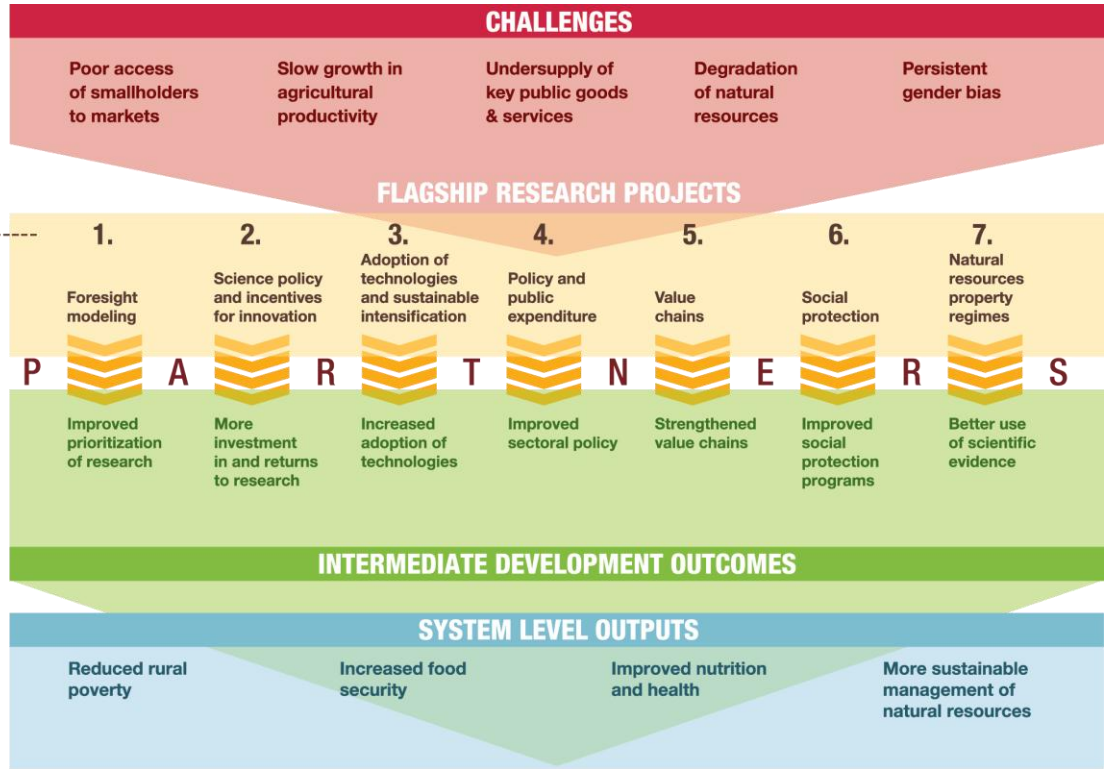
In most cases, impact of research is discernible only over a longer timeframe. PIM's action-oriented research delivers information and knowledge to influence processes that determine policy outcomes (Figure 4). PIM encourages researchers to focus on impact by addressing the following questions at the design stage:

- Why is the proposed topic important? What problem does it address? What is the demand for research outputs?
- What action might follow from results of the research?
- Would the action contribute to objectives of CGIAR?
- Is such action politically feasible in the near term?
- Who are the main agents and stakeholders who can undertake this action?
- What information do they need, and when do they need it?

PIM disseminates its research results among key stakeholders. Researchers participating in PIM do not directly control the instruments of action that deliver the final outcomes, such as the decisions on budget allocations, regulations, rules, and legislation. Although some PIM researchers may be stakeholders in the processes under review, most are not. Outcomes cannot, and indeed should not, be attributed solely to any contribution of PIM. The Paris Declaration on Aid Effectiveness is clear that it is the countries that own the development process; partners such as PIM assist but do not drive the process. PIM aims to achieve impact in the seven IDOs by assuring that its assistance is relevant to those who are primary agents in the decision processes.

PIM's action-oriented research delivers information and knowledge to influence processes that determine policy outcomes.

Figure 4 From challenges to impact



SUMMARY OF INTERMEDIATE DEVELOPMENT OUTCOMES (IDOS) FOR PIM'S FLAGSHIPS

1. Improved prioritization of global agricultural research effort for developing countries.
2. In selected countries of focus, more investment in agricultural research and higher rates of return to research.
3. Increased adoption of superior technologies and management practices in relevant domains of application.
4. Improved sectoral policy (i.e., reduced distortions and improved incentives) and better public spending for agriculture in agriculturally dependent developing countries.
5. Strengthened value chains that link producers and consumers with lower transactions costs, increased inclusion of smallholders, and provision of benefits to both women and men.
6. Improved coverage and efficiency of social protection programs.
7. Improved use of scientific evidence in decision processes related to property rights of natural resources important for rural livelihoods and more secure rights to natural resources for the poor.

Flagship 1

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 double. Just keeping pace with this scale of growth would represent a major challenge, but agriculture is also being subjected to increasing stresses from socioeconomic, environmental, and other drivers of change.

Symptoms of the stresses that major farming and food systems face manifest as growing competition for water and biomass resources, increasing variability in cereal yields in Africa south of the Sahara, and slowing productivity growth in the rice-wheat systems of South Asia's Green Revolution belt—one of the world's primary breadbaskets. The drivers of change include population growth, rising incomes, urbanization, technical change, persistent poverty and insecurity, natural resource degradation and climate change, volatility in finance and energy markets, and the ensuing policy responses. The interplay of underlying drivers has ushered in an era of variability, uncertainty, and risk, increasing the likelihood that investments critical for future food security may be misdirected or fail. Demand has increased for incorporating more strategic foresight into decisionmaking in many areas of agricultural research for the developing world.

The objective of PIM's foresight modeling is to generate scenarios that will indicate which new agricultural technologies and practices will do most to reduce poverty and hunger in the future.

Deciding how best to allocate resources for agricultural research is fraught with difficulties, not least of which are the long gestation periods of many research efforts and the consequent uncertainties about the benefits of new technologies under the conditions that will exist when they are ready for release. PIM's foresight work addresses these problems by modeling future scenarios and potential technologies and practices, and by providing insight into likely benefit streams.

The foresight work addresses research of the entire CGIAR system and will be expanded in the future to include partners from outside CGIAR, such as national agricultural research systems (NARSs) and subregional organizations. The work, linking biophysical, climatologic, and economic modeling, entails improvements in the International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT), a tool for modeling economic and demographic trends (see box on p. 13). The upgraded IMPACT model is linked with biophysical crop and livestock models that are able to characterize new and virtual technologies, including those for natural resource management. It is also linked with the latest information from climate models, in conjunction with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). This flagship project assesses the performance of potential technologies in terms of their ability to reduce poverty, improve food security, and reduce hunger, under a range of assumptions about investments.

DISAGGREGATING IMPACTS OF POTENTIAL TECHNOLOGIES BY GENDER

Many technologies have different benefits for men and women. PIM is exploring how best to develop sex-disaggregated data in order to identify the gender implications of alternative investment scenarios for inclusion in the foresight analysis. The separate impacts on men and women of new technologies have not previously been quantified in ways that facilitate inclusion in a modeling exercise as comprehensive as that developed under this flagship project. PIM's work thus far represents a significant advancement in the tools for gender analysis and their application.

The foresight work addresses research of the entire CGIAR system and will be expanded in the future to include partners from outside CGIAR.

Improving and linking the models

The IMPACT model is designed to examine alternative futures for global food supply, demand, trade, prices, and food security. It allows researchers to explore global baseline projections of agricultural commodity supply, demand, trade, prices, poverty, and malnutrition outcomes, and to access cutting-edge research results on quickly evolving topics such as bioenergy, climate change, changing diet/food preferences, and many other themes.

Key improvements undertaken in recent months:

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

PIM researchers have reviewed a wide range of biophysical crop and livestock models and linked the best of them to the IMPACT model. Working with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), PIM integrates findings of the major climate models as they become available.

The foresight modeling teams have completed or advanced characterizations of technologies for maize, wheat, rice, potatoes, pearl millet, sorghum, groundnut, chickpea, and pigeon pea. The teams also made progress on the assessment of promising new technologies for livestock systems. WorldFish has joined the foresight modeling project, allowing increased focus on aquatic production systems. The project has developed a list of 150 "promising virtual technologies," of which 20 have been selected for early assessment and reporting before the end of 2013

Flagship 2

SCIENCE POLICY AND INCENTIVES FOR INNOVATION

PIM's foresight modeling work helps inform choices between and among alternative paths for agricultural research, but the policy environment more broadly plays a central role in determining investment in innovation by both the public and the private sectors. How can scientific research best be organized and funded so that it generates innovations and what regulatory environment is best suited for their successful release and subsequent uptake?

To achieve this, PIM is

- measuring investment in agricultural research and its payoffs;
- improving understanding of complementarity between the public and private sectors in delivery and conduct of research;
- generating new insights into the best partnership arrangements to address efficiency and spillovers in research, risk management for release of new technologies, and the role of gender in adoption; and
- comparing the impact on innovators of various incentive regimes, such as patent protection.

The outcomes of the science policy project will help developing countries to secure benefits from their investments in national and regional agricultural research systems;

- identify and engage in effective partnerships regionally and globally;
- improve their incentive environments for innovation in order to attract investment;
- remove barriers to the release of new technologies (see box at top of p. 15); and
- ensure that both men and women benefit from the innovation process.

More specifically, the outcomes of this flagship project will help guide decisions on budget allocations for research (see box at bottom of p. 15), regulations on release of new varieties (including genetically modified organisms, or GMOs), regulations on patent regimes, and rules governing public-private partnerships. The impact pathways are highly political; they require decisions by executive and legislative branches of government, and they involve strongly vested interests of politicians, private firms, and nongovernmental organizations. Successful pursuit of impact for this work requires skillful interaction with the media.

ILLUMINATING GENDER BIAS IN SCIENCE POLICY AND INCENTIVES FOR INNOVATION

By explicitly considering differences in how men and women benefit from new technologies, PIM will raise awareness of potential gender bias in science policy, for example, in the decision to fast-track development or approval of particular technologies. This will help policymakers make informed decisions about gender-equitable approaches to improving incentives for innovation and removing obstacles to the development and release of new technologies.

Supporting responsible decisionmaking on biotechnology

Today, smallholder farmers in more than 15 countries successfully grow crop varieties developed through biotechnology. Others who might benefit have not integrated biotechnology into their agricultural systems, often due to a lack of a biosafety framework that would facilitate safe access to products and varieties. The Program for Biosafety Systems (PBS), now part of PIM, supports the development and implementation of science-based, functional biosafety systems that can ultimately expand producer choice, inspire consumer confidence, facilitate trade, and promote agricultural research and development.

Over the past 18 months, PBS has assisted several countries facing challenging issues regarding regulatory approval of GMOs. These countries include Indonesia, Kenya, Malawi, Nigeria, Philippines, Uganda, and Vietnam. For example, Uganda's cabinet approved and sent to parliament a biosafety bill that reflected advice from PBS. In Malawi, the PBS team provided technical assistance that allowed the country to conduct its first biotech field trial (for genetically modified cotton) in 2013. Close partnership with producers and local officials is part of the PBS strategy to facilitate informed decisionmaking on regulatory reform and choice of technology.

PBS has provided advice to a wide range of partners including national governments and other biosafety service providers, such as the African Network of Biosafety Expertise, the Center for Environmental Risk Assessment, Danforth Plant Science Center, and the Bill & Melinda Gates Foundation. The program is continually seeking ways to share resources and coordinate activities and goals with its partners.

Data: The foundation for evidence-based action

Evidence-based policy and decisionmaking depend on having access to reliable, accurate, and internationally comparable data. Providing such data is the mission of the program on Agricultural Science and Technology Indicators (ASTI), with support of PIM. ASTI collects, synthesizes, analyzes, and disseminates internationally comparable statistics on investments, capacity, and institutional trends in agricultural research and development in developing countries. ASTI's outputs assist managers and policymakers to make informed decisions. The work also informs governments and other stakeholders on the state of agricultural science and technology at national, regional, and international levels.

In 2012, ASTI worked with clients in Africa south of the Sahara to systematize and standardize data collection at regular intervals. This is a timely complement to the work of the team led by the Forum for Agricultural Research in Africa (FARA) to design the Science Agenda for African Agriculture, which is now under development. Over the first 18 months of PIM's operation, ASTI also released a set of country notes as well as a regional synthesis report on investment and human resource capacity in public agricultural research and development in South Asia. These reports have been cited widely.

Flagship 3

ADOPTION OF TECHNOLOGY AND SUSTAINABLE INTENSIFICATION

Deep rural poverty often leads to poor uptake of improved crop cultivars and better breeds of livestock, farming systems, and managerial techniques that could boost food production and increase food security. This reduces returns to the research that developed the technologies and diminishes the welfare of consumers and producers.

The Flagship Project on Adoption of Technology and Sustainable Intensification seeks to understand constraints to adoption and to develop practical recommendations to address them. The impact pathway for this work requires an understanding of institutional factors affecting the way producers make decisions about choice of technology, including their access to knowledge and constraints on acting on it. The impact pathway feeds both forward—to identify constraints and assess options to reduce or remove them—and backward, to the researchers—to improve their assessments of likely adoption rates and to shift resources toward more adoptable technologies. The work also contributes toward quantifying the environmental impacts associated with production methods across various agroecologies, highlighting their implications for longer-term sustainability, maintenance of agricultural biodiversity, and ecosystem function. The work re-examines agricultural extension in light of changes in communication technology and the increased interplay of public and private actors within innovation systems. This work includes PIM's contribution to the development of the New Alliance for Food Security and Nutrition's Technology Platform for Africa, and the associated tools for tracking adoption and expressing the data in interactive and searchable maps (see box below).

UNDERSTANDING THE ROLE OF GENDER IN ADOPTION OF TECHNOLOGY AND SUSTAINABLE INTENSIFICATION

PIM's work in this area concentrates on understanding how men and women producers make decisions about new technology, what information is available to them, and what barriers might delay adoption. A number of teams focus on the gender dimensions of technology adoption. The following are some examples:

- Drawing on a randomized control experiment conducted jointly by IFPRI, the World Bank, and the Government of Mozambique, researchers are examining whether agricultural training and representation of women in extension services promotes investments by female farmers.
- A team working largely in East Africa is exploring the efficacy of various approaches to reaching women with advice on agricultural production and examining the specific informational needs of women, taking into consideration the influence of marital status on these needs (see box below).
- A team analyzing data from intrahousehold surveys in Bangladesh, Kenya, Senegal, and Uganda is addressing questions related to gender, assets, extension, and technology adoption.

Boosting uptake and innovation…

. . . BY ALL FARMERS

Research on the effectiveness of volunteer farmer trainers—undertaken in East Africa by the World Agroforestry Centre (ICRAF), with support of PIM—led to a set of recommendations to incorporate volunteer farmer trainers as part of a system of advisory services. These recommendations were subsequently adopted by Heifer International, the Kenya Dairy Farmers Federation, the Uganda Dairy Farmers Federation, and the Bill & Melinda Gates Foundation-funded East Africa Dairy Development Project. Programs supported by these donors and partners target 400,000 farmers in five countries: Ethiopia, Kenya, Rwanda, Tanzania, and Uganda.

. . . AND BY WOMEN FARMERS

Female volunteer trainers are as effective as their male counterparts in reaching mixed groups of farmers, according to findings of a team working largely in East Africa. Use of female trainers (who do not have the full status and educational backgrounds of extension workers) can increase representation of women in extension roles; only 10 percent of extension workers in the study area were female, but over one-third of the farmer trainers were women.

Mapping of technology promotes uptake

PIM and the other CGIAR Research Programs are undertaking a comprehensive mapping of the activities of all the research programs. When completed, the exercise will promote uptake in several ways. It will allow researchers within the various programs to see where they (and other programs) are active; it will allow researchers and their partners in the national systems and subregional organizations to identify new opportunities to apply the technologies and management practices they have developed; and it will facilitate monitoring and evaluation. Geospatial characterization of technology use now facilitates focused efforts to understand the constraints to adoption and to target efforts to accelerate it. The information generated by mapping the activities of the programs will contribute to better coordination of knowledge and investment—for example, in support of the Comprehensive African Agricultural Development Programme (CAADP). Partnership on CAADP is a key element of a memorandum of understanding between the African Union and the CGIAR Consortium Office.

Flagship 4

POLICY AND PUBLIC EXPENDITURE

Even in relatively remote parts of the developing world, food security and small producers' livelihoods are affected by events elsewhere, through price shocks, international financial crises, global macro-economic imbalances, and differences in growth patterns between industrialized and developing countries. The need to make domestic agriculture in developing countries more productive and resilient to shocks requires significant public investments. Two critical constraints in promoting pro-poor agricultural growth, therefore, are inadequate policies and underinvestment by the public sector in things that really matter for agriculture.

This flagship project addresses the question of how governments can best direct public investment and manage sectoral and macroeconomic policies to provide appropriate incentives for producers as well as affordable food for consumers. The suite of policies (trade, price, tax, regulations, and investment) that determine the incentive environment for agents in the agricultural sector affects decisions about production, marketing, processing, and investment; accordingly, it influences not only returns to research but also the performance of the sector. PIM works at a number of levels to provide guidance in these areas.

Much of PIM's work on public expenditure and policies is specific to the needs of national or regional partners and clients. For example, the Arab Spatial Development and Food Security Atlas assists countries in the Middle East and North Africa to explore new policy options at a time of great political change (see box at bottom of p. 19). At a more general level, several separate initiatives are under way to allow observers to measure weaknesses and distortions in a country's incentive environment relative to other countries. Members of the Organisation for Economic Co-operation and Development (OECD) have reported on these measures for a number of years, and a number of developing or middle-income non-OECD member countries have participated in episodic assessments. Uneven coverage of the non-OECD countries, gaps in the data, and questions about methodology have limited the ability of policymakers in the developing world to use these metrics to benchmark the performance of their countries relative to their neighbors and competitors. PIM has therefore joined with OECD, FAO, the Inter-American Development Bank, the World Bank, and others to form a learning network to facilitate sharing of methodologies and to provide peer review of results. Closely linked to the work on incentives is work on improving the methodology for assessing public spending in agriculture. Public investments are critical to the evolution of the incentive environment, and many developing countries currently employ opaque and nonstandard methods for reporting on spending.

PIM also invests in research on the global trading system for agriculture, assisting both countries and regions in understanding the global implications of national policies. A good example of this is the work supported by PIM and others for the European Union (EU) on the implications of the EU's biofuels policy (see box at top of p. 19).

PIM's work under this flagship project benefits from strong partnerships through (for example) IFPRI's Country Strategy Support Programs in selected countries, as well as similar long-standing engagements of other participating centers with national partners.

DEMONSTRATING IMPACT OF POLICY AND PUBLIC EXPENDITURE ON WOMEN

Measuring the effects of choices in spending is challenging, commonly requiring long-term panel data. PIM's strategic gender research draws on and enhances existing panel data for six villages in India, initially developed by the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), spanning the periods from 1975 to 1984 and from 2001 onwards. New panel data added by the flagship teams will allow for the examination of changes over time, including:

- participation of women in farm and nonfarm enterprises and non-land agricultural employment;
- the role of institutions in fostering women's participation in economic, sociocultural, and sociopolitical activities and in improving food and nutritional security of households; and
- nutritional requirements and nutrient intakes of rural men and women, analyzed both temporally and spatially, to understand shifts in their nutritional status resulting from changes in levels of physical activity and changes in lifestyle, for example from mechanization of agriculture.

The need to make domestic agriculture in developing countries more productive and resilient to shocks requires significant public investments.

Contributing to EU policymaking on biofuels

A 2011 assessment of the impacts of the European Union's biofuel policy, conducted by IFPRI and the International Institute on Applied Systems Analysis, raised questions about the sustainability of the policy and highlighted the greater emissions of a biodiesel-oriented biofuel program compared with a bioethanol-oriented program. In 2012, PIM supported a study that used the MIRAGE-BioF* model to assess the potential impact of the change in the biofuel policies proposed by the European Commission on October 17, 2012. The study found that the new proposal would reduce the share of biofuels originating from food crops and would remedy some of the unintended environmental consequences of biofuel mandates, such as the change of land use to intensive agriculture. Discussion of this proposed policy change remains active in Europe, and the research results are highly visible.

* MIRAGE-BioF stands for Modeling International Relationships in Applied General Equilibrium for Biofuel analysis.

New online data portal supports decision- and policymaking in the Arab world

In February 2012, PIM co-launched the Arab Spatial Development and Food Security Atlas, in partnership with IFPRI and the International Fund for Agricultural Development (IFAD). Arab Spatial is an online information portal that aggregates food security and development information from the region's governments and international institutions. Its objective is to improve access to quality data and to support decision- and policymaking for a food-secure Arab world, covering the 22 member countries of the Arab League of Nations (extending from Mauritania and Morocco in the west to Iraq and Oman in the east). The tool displays the data on maps, showing regional, national, and subnational data in the form of 100 indicators related to macro-economics, governance, trade, and agriculture. The open-source and open-access database is regularly updated as new information is made available, and users can download datasets for further analysis or for use in other systems.

Flagship 5

VALUE CHAINS

Agricultural growth offers prospects for reducing rural poverty, but only if the value chains important to the poor—whether as producers or processors, or at any point in the chain from production to consumption—work well and are open to their participation. Many rural markets are imperfect, remote, and characterized by a large number of small-scale producers or consumers and few intermediaries. Under these circumstances, competitive and efficient chains rarely emerge naturally, and targeted interventions may be required to remedy market imperfections.

This flagship project addresses the problem that connections between producers and consumers are weak or costly, resulting in lower returns and incomes for producers and higher prices to consumers. It is designed to help systematize research on value chains within the CGIAR system and to generalize lessons about interventions that work well under various circumstances (for example, see the box on p. 21). Those working on this flagship project have created a community of practice as well as a website for sharing tools and methodologies, and are assembling a body of rigorous research results on the effectiveness of interventions. The Value Chains project has close links with Flagship Project 2 (Science Policy and Incentives for Innovation) and Flagship Project 4 (Sectoral Policy and Public Expenditure), because some of the weak points in value chains can be addressed either through better targeted public spending or through policy and regulatory reforms that reduce transactions costs.

GENDER IN VALUE CHAINS

A substantial body of work on value chains addresses the gender dimensions of inclusion and efficiency. Most value chains exhibit gender segregation along the chain, and PIM is providing tools for diagnosing such segregation and assessing its implications. The value chain work also documents circumstances under which commercialization can lead to transfer of control of assets from women to men, and the effects of such transfer. In addition, much of the work on preservation of biodiversity through commercialization of neglected and underutilized species similarly assesses gender dimensions.

Agricultural growth offers prospects for reducing rural poverty, but only if the value chains important to the poor work well and are open to their participation.

Improving contracts, building trust

Work supported by PIM on contract structures in Peru, Tanzania, and Vietnam identified ways to write contracts that provide better incentives and higher prices to farmers to produce products of good quality. For example, in Vietnam the introduction of third-party testing for quality of milk contributed toward building trust between producers and processors and resulted in delivery of higher-quality milk as well as higher prices for farmers. Prior to the intervention, producers doubted that processors would pay more for higher quality, and they consequently delivered low-quality milk. When third-party testing confirmed that payments did accurately and consistently reflect quality, producers were willing to incur the higher costs involved in delivering higher quality.

MOST VALUE CHAINS EXHIBIT GENDER SEGREGATION ALONG THE CHAIN, AND PIM IS PROVIDING TOOLS FOR DIAGNOSING SUCH SEGREGATION AND ASSESSING ITS IMPLICATIONS.

Flagship 6

SOCIAL PROTECTION

Some people may not be able to benefit directly from 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 a technical advancement. In addition, many of the world's poorest households live with great risk, related (for example) to weather, price variability, or health. When health, climate, or price shocks hit, vulnerable households and individuals may be forced to cut back on consumption, reduce investments in education, or sell productive assets. The risk of such shocks also discourages resource-poor households from adopting potentially more productive technologies.

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

Work under PIM examines the various instruments suitable for different groups requiring the assistance of safety nets and explores ways that governments can employ them to complement traditional institutional arrangements to protect against adverse events (see box below). In particular, this research identifies and analyzes social protection policies that are gender-sensitive, and it uses this information to promote programs that benefit both women and men. Teams are also looking at the complementarity between social safety nets and programs promoting agricultural growth, and identifying opportunities within safety nets to remedy market imperfections or exclusion of the very poor from markets that might support income growth. Other study teams are investigating the determinants of take-up of a variety of insurance products relevant to the rural poor, and examining the interaction between private insurance and social protection. Researchers are also investigating 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 the effectiveness of social safety nets implemented in the context of emergencies.

The outputs of this work include advice on the design of programs to meet specific needs of target groups and specific contexts, as well as advice on public spending on safety net programs. PIM assists operational staff in meeting goals that they have defined, and the program solicits feedback from the implementation partners to assess success.

This research identifies and analyzes social protection policies that are gender-sensitive, and it uses this information to promote programs that benefit both women and men.

Delivering results in Bangladesh

The Government of Bangladesh is currently working to streamline its social safety net system. As part of the process of providing evidence to guide the redesign of the national social protection strategy, PIM is supporting the evaluation of a two-year experimental pilot program implemented by the World Food Programme. Since May 2012, selected communities have been randomly assigned to one of six study categories: receiving a food ration (grains, pulses, and oils); receiving a cash transfer of equivalent value, delivered through mobile phones; receiving a combination of food and cash; receiving food plus intensive nutrition education; receiving cash plus intensive nutrition education; or acting as a control group. Baseline, midline, and qualitative fieldwork have been carried out, and an endline survey of the participants—4,000 ultra-poor women and their 18,000 family members—will be completed in May 2014. Researchers will evaluate which benefit type is most effective. The results will be used to revise the design of the nationwide program.

GENDER SENSITIVITY IN SOCIAL PROTECTION

Social protection approaches have many benefits, but care must be taken to ensure that all members of the target groups benefit. PIM is looking at how interventions benefit different groups, and especially their differing impacts on males and females, across and within households and over the life cycle of the intervention (see box below). After identifying the conditions under which social protection programs stimulate agricultural income growth, asset preservation, and accumulation, PIM examines whether these benefits differ between males and females. In light of current interest in insurance for social protection, PIM has undertaken a body of work assessing how innovations in insurance markets can provide better protection for poor men and women. Finally, in response to requests from clients, PIM has investigated whether women prefer (and benefit more) from insurance instruments that are especially designed to meet gender-specific needs; preliminary findings indicate that they do not.

Demonstrating impact of women's control over decisionmaking in Brazil

Researchers supported by PIM have recently completed a major evaluation of Brazil's Bolsa Familia program, which focuses on reducing both short-term and long-term poverty. PIM's work showed that, for women residing in urban areas and those with less schooling than their male partners, Bolsa Familia delivers large and statistically significant increases in women's control over decisionmaking across a range of domains. These include children's clothing expenditures; women's own clothing expenditures; children's school attendance; children's health expenses; purchases of household durable goods; contraception; and women's own labor supply. These results provide the first direct, quantitative evidence of the impact of conditional cash transfers on specific spheres of women's decisionmaking.

Flagship 7

NATURAL RESOURCE PROPERTY REGIMES

Property rights play a central role in the management and use of natural resources such as land, water, biodiversity, and in the delivery of public goods such as ecosystem services. Property regimes determine who has access to land (and associated natural resources), and who has the responsibility for managing these lands. They also structure incentives or disincentives for sustainable management and governance of these natural resources.

PIM has ongoing work on property regimes concerning land, water, and biodiversity. Resources held in common, or under unclear or insecure tenure regimes, are frequently poorly managed and suffer from degradation. PIM research teams are addressing this problem by clarifying and quantifying trends relating to stress on natural resources, under various assumptions about managerial and regulatory regimes. They are also working to identify the distribution of benefits associated with alternative approaches to managing resources, and their implications for agricultural growth. An example of PIM's contribution in this area is the ongoing multi-agency effort to understand and prepare for the future of Africa's drylands, including institutional arrangements for managing fragile and contested rangelands. This research is jointly implemented by the African Union, CGIAR, Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), FAO, IFAD, national agricultural research systems (NARS), USAID, and the World Bank. Another example is the work on resolving conflicts over property rights in Cambodia, which resulted in improved access for fishing communities (see box at top of p. 25).

This flagship project links with Flagship Project 5 on value chains, and particularly its work on the commercialization of neglected and underutilized species as an approach to in situ preservation of biodiversity (see box at bottom of p. 25).

BRINGING A GENDER LENS TO NATURAL RESOURCE PROPERTY REGIMES

Women often fare badly under both customary and legal management systems relating to property and natural resources. This flagship project is investigating gender bias in property regimes, including the relationship between women's asset ownership and broader development outcomes. Researchers are investigating ways to strengthen the access and tenure security of poor men and women in relation to land, water, trees, and other critical natural resources, in the face of increased and globalized resource competition (particularly in multiuse landscapes). One area receiving particular attention is the significant role of collective action in resource management. PIM's research on this topic seeks to identify interventions that increase the effectiveness of collective action, promote the inclusion of women and marginal groups in the process, and reduce gender and other inequalities in accessing, participating in, and leading collective action institutions.

Resolving property rights conflicts in Cambodia

Participants in the CGIAR Systemwide Program on Collective Action and Property Rights (CAPRi), supported by PIM, have contributed to resolving natural resource conflicts in Cambodia's Tonle Sap Lake. CAPRi researchers worked with local partners to understand the sources of vulnerability in fishery livelihoods and to strengthen resilience. Following discussion and mobilization, the Cambodian Ministry of Agriculture, Forests, and Fisheries (MAFF) transferred a large commercial fishing concession to the community, totaling 2,684 hectares. The project also helped resolve a boundary dispute between community fishery organizations in neighboring provinces. Additionally, as a result of its involvement in the CAPRi initiative, and bolstered in particular by these positive outcomes, the Coalition of Cambodian Fishers, a grassroots network representing fishing communities, modified its internal governance and strategy of engagement to emphasize constructive links with both government and the formal nongovernmental organization sector.

Crop commercialization promotes in situ conservation

Research on capsicum (chili peppers) value chains in Bolivia and Peru has provided specific information that will help improve the lives of small-scale producers in those countries, while offering generalized insights into commercialization as a strategy for in situ preservation of agricultural biodiversity.

Chili peppers, originating in Central America and northern South America, are widely grown by resource-poor farmers in Bolivia and Peru. A project supported by PIM is working to map and improve the capsicum value chain through the combined efforts of a broad range of stakeholders: researchers, farmers, farmer associations, nongovernmental organizations and foundations, private companies, universities, development agencies, national and international research institutions, regional government officials, restaurants, and processors. Already, they have identified specific bottlenecks as well as effective strategies to overcome them and reduce transaction costs. Additionally, new commercial products (bottled, canned, and dried chilies; chili jam; specialty cheeses; and other products incorporating chilies) have been developed through formal and informal collaboration—based on enhanced mutual trust—involving people and groups along the value chain. Participating companies are specialty buyers, who are able to offer better and more stable prices to farmers. Increased commercialization of chili peppers has created new employment opportunities for women.