

ANNEXES

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3.2 Partnership Strategy

PIM provides targeted analysis to strengthen the evidentiary base for better policies, stronger institutions, and well-functioning markets. This ambitious agenda can only be achieved through the concerted efforts of many partners. This note explains the approach that the program takes to partnerships.

Types and roles of partners

PIM partnerships can be divided into four broad categories, namely: research, implementation, knowledge-sharing, and funding partnerships. The same partner organization may belong to several categories. Each of the four types is briefly described below.

Research partners participate in the design and implementation of the research. They include CGIAR Centers, universities, policy research institutes, national agricultural research institutes, and policy units of government agencies in both developing and developed countries. Government agencies, NGOs, farmers' organizations, and private-sector firms may also be research partners when they help design and test interventions.

Researchers exert constructive influence by working with **implementation partners**, who apply research results in dialogues on policy processes or in design and implementation of investment programs. Examples include government agencies that request policy advice or assistance with design of their programs; donor organizations that seek advice on new strategies or priorities for investment; governments or NGOs implementing programs that are being evaluated by PIM's research projects; and private-sector actors that participate in value chain innovations to help smallholder farmers reach high-value markets. These partners often work with the researchers to set priorities and identify the key questions to be addressed.

Knowledge-sharing partners help to package and transmit knowledge. They disseminate information to their own constituencies (as when a donor agency shares findings from research in one site to its offices in other countries) but also to a broader public. They also play a critical role in capacity strengthening, as for example when universities use research findings in courses or when other organizations run training courses using the research outcomes. The major media, particularly in the developing world, are key knowledge-sharing partners.

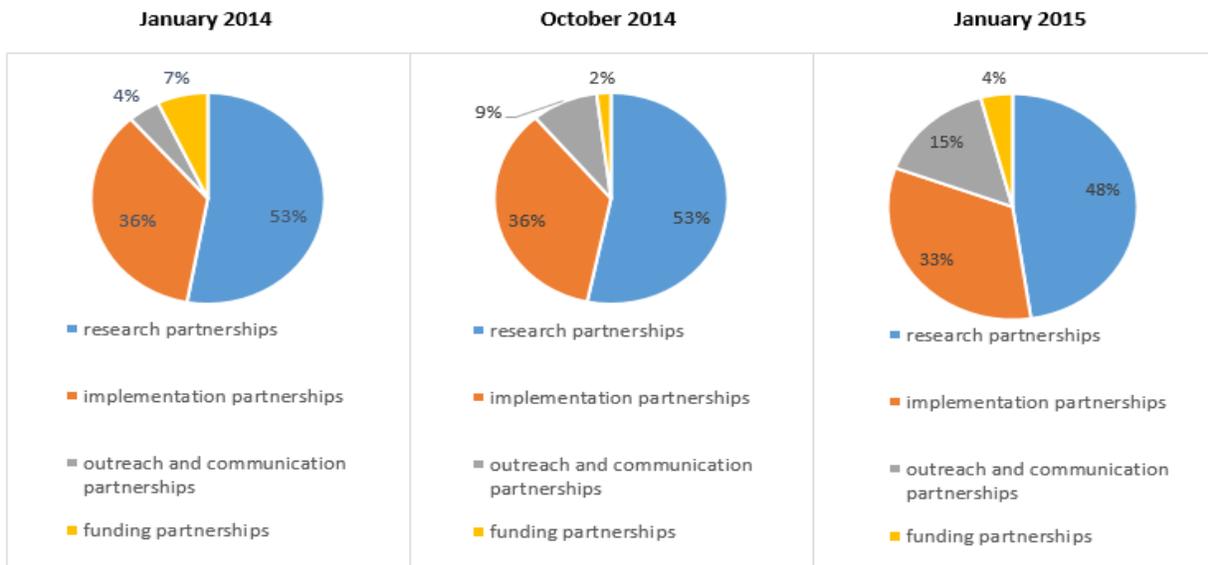
Funding partners are donors who invest in and support PIM. The role of a funding partner may range from that of a standard investor with minimal involvement in research discussions to a donor agency that engages actively in the research process and contributes to the setting of research priorities. Regardless of their individual level of engagement in the research-for-development process, funding partners are critical to the overall success of the program.

Selected partners in the categories listed above include: CGIAR Centers and CRPs; advanced research institutes and universities (for example, Cornell University, Michigan State University (MSU) (see Table 3.2.4), the University of Florida, and Wageningen University and Research Centre (WUR)); national agricultural and policy research institutes in low- and middle-income countries, such as the Agricultural Research Council of Nigeria, the Chinese Academy of Agricultural Sciences, the Indian Council of Agricultural Research (ICAR), and the National Institute of Agricultural Economics and Policy Research (NIAP); national governments in low- and middle-income countries; global organizations and international

financial institutions (such as FAO, IFAD, OECD, the World Bank, and WFP); development partners (including a range of bilateral aid agencies); nongovernmental and community organizations (Catholic Relief Services (CRS), Technoserve, World Vision International (WVI)); civil society (including farmer organizations); foundations; and the private sector (for example, Unilever (value chains), Croplife International (seed policy and regulation), Banco de Seguros del Estado, Uruguay (insurance)).

In Phase 1, research partners represented the largest category of partnerships reported by the PIM researchers, followed by implementation partnerships.¹ However, over the course of Phase 1, the number of reported knowledge-sharing partners increased significantly, which is likely to further strengthen PIM’s impact and influence on the ground (see Figure 3.2.1).

Figure 3.2.1: Overview of partners as reported in PIM’s Window 1-2 funded activity progress reports



Partnership modalities

The modalities of the PIM partnerships are linked to the critical integrative functions that PIM fulfills within the CGIAR portfolio. PIM assists other CGIAR programs to identify synergies on policy and institutional matters; develops common and shared messages on policy issues; contributes to the development of key public goods (including new tools and methods for policy analysis and open-access datasets); and hosts communities of practice that draw together researchers working in other programs.

Participation of research partners in PIM ranges from major involvement in several flagships to limited involvement through discrete activities. In Phase 2, there will be three categories of partners – managing partners, strategic partners, and collaborative partners. **Managing partners** are large contributors and may play roles in flagship or cluster leadership. They include three external organizations (Michigan State University, Wageningen University and Research Centre, World Vision International), and five CGIAR Centers: IFPRI, CIAT, CIFOR, CIP, ICRAF. Managing partners were selected based on their participation in PIM in Phase 1 and expressed interest to contribute at a significant level in Phase 2. They bring strong research skills, or, in the case of WVI, implementation presence, and have demonstrated commitment to

¹ Data from Partnership sections of annual progress reports for Window 1-2-funded activities.

the objectives of PIM. They are engaged across several flagships, and in some cases already serve on the Management Committee. Managing partners will nominate two shared representatives to the PIM Management Committee, and sign Program Participant Agreements (PPAs) or other contractual agreements with IFPRI as Lead Center of PIM. **Strategic partners** contribute more selectively to the program, and do not participate in program management. Strategic partners, as managing partners, bring strong research skills and implementation engagement, but engage in flagships or activities, rather than across the program. Among those are external partners (e.g., ASARECA, CCARDESA, CORAF, FAO, FARA, IFAD, OECD, World Bank) and CGIAR Centers (Bioversity International, CIMMYT, ICRISAT, ILRI). Strategic CGIAR Centers will work under contracts that entail fewer transactions costs than PPAs. **Collaborative partners** include CGIAR Centers with a focused contribution in a limited number of activities (AfricaRice, ICARDA, IITA, IRRI, IWMI, WorldFish), and hundreds of other organizations. Collaborative partners are distinguished from strategic partners by the size and scope of their engagement, and, in some cases, by the duration of joint work. During the course of Phase 2, and taking into account performance assessment and available resources, PIM will reassess its levels of partnerships with the different CGIAR Centers as priorities evolve (for example, through site integration planning).

In Phase 2, PIM will **strengthen linkages with the other CRPs**. PIM's prioritization of research topics and locations is informed by other CRP interests. Communication channels and communities of practice, which in Phase 1 were mainly directed to Centers, will in Phase 2 more strongly feature CRPs. The initial specific areas of collaboration between PIM and other CRPs are described in Sections 1.0.7 and 3.0.7.

Examples of strategic partnership activities

PIM is committed to developing partnerships within CGIAR and with national research, development, private-sector, and government organizations to support national agricultural development targets in **selected CGIAR countries of collaboration**. Annex 3.7 describes PIM's participation in the consultations in CGIAR countries of collaboration. Many key development and research challenges raised by national participants align with PIM's objectives. PIM will strengthen coordination of policy research in **Bangladesh, Ethiopia (see Table 3.2.1), Ghana, India, Malawi, Nicaragua, Nigeria, Tanzania, Uganda, and Vietnam**, building upon the IFPRI Country Strategy Support Programs in countries where such a program is in place.

PIM's **strategic partnerships in Africa** contribute to the Science Agenda for Agriculture in Africa. Prioritization of PIM's activities in support of this process is established through high-level discussions with the Forum for Agricultural Research in Africa (FARA) and the African Union Commission (AUC). PIM provides continued support to FARA, ASARECA, and CORAF to develop an agricultural technology platform for Africa (see Table 3.2.3). PIM's research is also aligned with continental development initiatives such as the CAADP-led national agricultural investment plans and AGRA's agricultural development strategy. PIM will build on the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) support to national agricultural investment plans under CAADP to provide evidence for policy and institutional priorities in selected CGIAR countries of collaboration. Discussions with AGRA have identified a strategic area of collaboration on seed and variety regulation reforms. Additionally, together with the Economic Community of West African States (ECOWAS) and CAADP, PIM supports efforts to increase regional trade.

Finally, a number of strategic partnerships are formed around **thematic areas**. These partnerships often span research and development, generating high-quality outputs and outcomes. One example is PIM's work on agricultural growth and transformation: on this topic, research partners Cornell University, Michigan State University, and Tufts University contribute to understanding of landholdings dynamics, employment

patterns, and agricultural investment used by implementation partners: for example, FAO in its programs on employment and youth, and the World Bank and IFAD in their strategies to promote inclusive growth. There are many similar research-to-development partnerships in the value chains (see Table 3.2.5), social protection (see Table 3.2.6), natural resource governance (see Tables 3.2.7a and 3.2.7b), and gender (see Table 3.2.8) areas.

Foresight modeling constitutes another example of a strategic partnership, which involves all 15 CGIAR Centers and links to other CRPs, along with Wageningen University, the University of Florida, Oxford University, Purdue University, FAO, and the International Institute for Applied Systems Analysis (IIASA) – which bring in skills on topics such as nutrition and health and crop modeling (see Table 3.2.2).

PIM will host the CGIAR Collaborative Platform for Gender Research, which will extend partnerships in advancing gender research methods to all CGIAR Centers and CRPs and to a large number of national partners.

Among the PIM partners, **private-sector partners** play an important role. PIM researchers working in the area of seed policy, input supply, and regulation of biotechnology interact with seed companies and dealers to understand the regulatory constraints they face. Researchers addressing policies in the biofuel sector interact with private firms to understand their responsiveness to price changes and adjustments in the mandates and the implications of regulatory change for the industry. Researchers working in the area of extension and advisory services assess the role of private firms in provision of information to smallholders, including public-private partnerships in communication and information management. An internal analysis of the Phase 1 partnerships has recommended that PIM be proactive in strengthening partnerships with the private sector, and this is an objective for Phase 2.

Sustaining partnerships

Sustained partnerships require adherence to the following guiding principles:

- Agreement of partners on key goals and objectives
- Commitment to engage in an inclusive, transparent, and trustworthy manner
- Commitment to ensure that the partnership contributes effectively and adds value
- Identification of clear, mutual benefits for each partner
- Adherence to mutual accountability, respect, and recognition of contribution
- Acknowledgement that roles and expectations are clearly understood among all partners
- Practices that reflect emphasis on value addition, as opposed to seniority and hierarchy

Information gathered through PIM's Window 1-2-funded activity progress reports will continue to be summarized for an annual report on partnerships. This information provides an overview of PIM partnership trends, including some of the strengths and potential challenges that may be associated with the different types of partnerships in which PIM is engaged, and is expected to provide guidance for sustaining the development and strengthening of strategic and successful partnerships.

Partnering capacity

PIM's [external evaluation](#) demonstrates the program's capacity to carry out a successful partnership strategy. As part of the evaluation, respondents to a survey of PIM partners rated the performance of PIM project teams uniformly highly in terms implementing partnerships. PIM has built **strong communities of**

practice within CGIAR, resulting in an increased number of Centers participating in PIM. In addition, PIM has contributed to linking CGIAR Centers to external centers of excellence in a number of thematic areas (for example, foresight modeling). Phase 1 also saw the **strengthening of partnering activities along the PIM impact pathways, including with global organizations, national governments, NGOs, and the private sector**. PIM puts a high level of investment into these partnerships; conversely there is high demand from implementation organizations for PIM to support their planning or implementation efforts (for example, from ASARECA for technology adoption tools, from IFAD for strategy support, from the G20 for the [Technical Platform on the Measurement and Reduction of Food Loss and Waste](#), and from the World Bank for strategy support) (see Section 1.0.9).

PIM collects information on partnerships on an annual basis, and conducts analyses to determine if planned partnerships are on track. **PIM's partnering capacity is supported by the Partnerships and Business Development Office of the Lead Center.**

Appropriate resourcing of partnerships

Of the amounts allocated to all CGIAR Centers (including the Lead Center), approximately 25% is contracted to external research partners.

Examples of partnerships**Table 3.2.1: CRP level – PIM partnerships in Ethiopia**

Convener and Role	The Ethiopian Ministry of Agriculture convenes the partnership with the IFPRI Country Strategy Support Program (CSSP). PIM coordinates additional research efforts to support the identified agenda.
Specific focus and objective	Support the Government of Ethiopia in reducing rural poverty and increasing agricultural growth.
Science agenda	<p>PIM supports the Government of Ethiopia in several ways:</p> <ul style="list-style-type: none"> • Through a Country Strategy Support Program (CSSP) that addresses 9 thematic areas of interest identified by the Ministry of Agriculture (productivity and agricultural transformation; markets and value chains; food prices; risk and insurance; land and water management; poverty, nutrition and safety nets; support for the Growth and Transformation Plan; rural transformation and non-crop income; agriculture and nutrition linkages). The CSSP has generated more than 50 analysis pieces for the Government over the past 3 years. There is also a significant capacity development component to build national expertise in policy analysis. <i>(Flagship 2)</i> • Through support to the Agricultural Transformation Agency (ATA) for developing implementation strategies. <i>(Flagship 2)</i> • Through evaluations of novel mechanisms to strengthen the effectiveness of the Productive Safety Net Program (PSNP) and the Agricultural Growth Program (AGP) with the Ministry of Agriculture and other government officials. <i>(Flagship 4)</i> • Through a newly established value chain hub to promote wider use of research and development tools with a view to improving market efficiency and participation of marginalized populations in value chains. <i>(Flagship 3)</i> • Through ongoing research on the impacts of government land tenure reforms. <i>(Flagship 5)</i>
Geographic focus/location	Ethiopia
Role of the CRP	In Phase 1, PIM has supported the activities noted above. In Phase 2, PIM will assume a larger role of streamlining policy engagement in the country in coordination with the CSSP. This will contribute to improved coordination across CGIAR, and to a stronger PIM portfolio in the country.
Key CGIAR partners and their roles	<ul style="list-style-type: none"> • IFPRI manages the CSSP, leads the evaluations of the PSNP, the AGP, and land tenure reforms, and supports the ATA. • ILRI hosts the value chain hub, and engages in livestock value chain research in Ethiopia. • ICARDA conducts research on small ruminant value chains in Ethiopia, with linkages to the value chains hub. • The three Centers work on postharvest loss research in Ethiopia.

<p>Key 'external' partners and their roles</p>	<p>Key external development partners are the Government of Ethiopia, as well as the World Bank, USAID, and the World Food Programme (WFP), which use the findings to shape their own programs and investments in the country in consultation with the government. The World Bank increased its funding of the PSNP based in part on evidence provided by PIM on the impact of the program. USAID is the main donor for the CSSP, and outputs of the program are chosen to support the Feed the Future program and other USAID programs. WFP uses safety net mechanisms tested by IFPRI/PIM researchers.</p> <p>The main external research partner is the Ethiopian Development Research Institute (EDRI). EDRI is one of the prime development policy think-tanks in the country, and has strong links with government policy processes. In recent years EDRI has expanded its research capacity through recruiting several young PhDs (with degrees in US, European or Australian universities), and its weight in national policy design and decision making is likely to increase in the future. EDRI is managed by the senior economic advisor to the Prime Minister, which facilitates linkages with policy making processes.</p>
<p>Contribution to impact pathway and theory of change</p>	<p>Ethiopia is a priority country for PIM, and the Government of Ethiopia is a key user of the evidence generated by the program. Overall, the set of research activities contribute mainly to Sub-IDO CC3.1.3 Conducive agricultural policy environment, while individual elements of research contribute to Sub-IDO CC4.1.2 Enhanced capacity in partner research organizations, 1.2.2 Reduced market barriers, and 1.1.1 Increased household capacity to cope with shocks.</p>

Table 3.2.2: Flagship 1 – Foresight modeling

Convener and their role	PIM Flagship 1 – convenes a community of practice among all CGIAR Centers, builds capacity of external organizations, and connects CGIAR research to other foresight groups and clients.
Specific focus and objective	Develop and share foresight quantitative modeling tools and analyses in order to answer the following questions: <ul style="list-style-type: none"> • What are the key socioeconomic and biophysical drivers of change in agrifood systems? What challenges do these drivers present to achievement of sustainable food and nutrition security at global, regional and national scales? • How can agricultural technologies, natural resource management practices, and infrastructure investments address these challenges in ways that manage trade-offs, protect natural capital, and sustain the provision of ecosystem services?
Science agenda	<ul style="list-style-type: none"> • Improve foresight models and tools. • Assess the likely long-term impacts of alternative pathways in agricultural technology, management practices, public policies, and investments by CRPs, CGIAR Centers, and national partners on productivity, prices, food and nutrition security, land and water use, and other socioeconomic and environmental outcomes of importance. • Strengthen the ability of multilateral and bilateral donors, national policy makers, and global thought leaders to carefully consider and assess the impacts of alternative policy and investment strategies on productivity, prices, food and nutrition security, land and water use, and other socioeconomic and environmental outcomes of importance. • Develop training/learning materials, guidelines, and best practices to build the capacity of partners. <p>Insights gleaned from these analyses inform decision making on selection of technologies for development within CGIAR and NARS, and can signal policy reforms and investments that will be needed to complement development and release of new technologies.</p>
Geographic focus/location	Global, with regional and national applications
Role of the CRP	Convenes a community of practice among all CGIAR Centers (including maintenance of essential tools and databases), strengthens capacity of external organizations, and connects CGIAR research to other foresight groups and clients.
Key CGIAR partners and their roles	All CGIAR Centers participate. <ul style="list-style-type: none"> • IFPRI convenes the community of practice, manages the main databases and the IMPACT system of models, supports the development of joint outputs and their dissemination, and provides training to CGIAR Centers and other partners on the use of IMPACT. • Other Centers contribute to the development and improvement of crop/livestock/fish/agroforestry models, and provide improved datasets on adoption and yields of crops. They also participate in development of joint analytical products.

<p>Key 'external' partners and their roles</p>	<ul style="list-style-type: none"> • The University of Florida works with CGIAR Centers to improve crop models. • Wageningen University and Research Centre will collaborate on improving nutritional analyses of projections. • Oxford University will collaborate on improving analyses of health outcomes. • The broader partnership with the Agricultural Model Intercomparison and Improvement Project (AgMIP) brings together leading modeling groups to share methods and data. These include FAO, International Institute for Applied Systems Analysis, Purdue University, and Potsdam Institute for Climate Impact Research, among others.
<p>Contribution to impact pathway and theory of change</p>	<p>The main contribution of the partnership is to enrich the scope and quality of the foresight analyses, thus making them more credible, useful, and accessible to users. Key, directly affected, Sub-IDOs are CC1.1.3 Improved forecasting of impacts of climate change and targeted technology development and CC4.1.1 Enhanced capacity in partner research organizations. These feed into improved global awareness and use of future scenarios and modeling tools, improved decision-making capacity in developing countries, and Improved policy and investment choices. These outcomes, in turn, contribute to Sub-IDO 1.4.2 Closed yield gap through improved agronomic and animal husbandry practices, and Sub-IDO 1.4.4 Increased conservation and use of genetic resources sub-IDOs, leading to contribution to IDO 1.4 Improved productivity. See Figure 2.1.1.3.1 in the Flagship 1 narrative.</p>

Table 3.2.3: Flagship 1 – Partnership in support of the Virtual Information Platform in Africa

Convener of the Partnership and their role	PIM Flagship 1 convenes the partnerships with regional and national partners in Africa in support of development of the Virtual Information Platform for Africa.
Specific focus and objective	Develop the Virtual Information Platform component of the African Agricultural Technology Platform, a concept endorsed by the G8 and included in the MOU signed between the CGIAR Consortium and the African Union Commission.
Science Agenda	<ul style="list-style-type: none"> • Assess major informational needs of partners for support in technology diffusion and adoption. This occurs through interaction at regional and national levels, especially with ASARECA and CORAF and organizations in three pilot countries: Ghana, Tanzania, and Uganda. • Develop methods and tools for collecting and analyzing the required data. This includes: (a) developing a technology ontology to facilitate the organization of the data, (b) developing cost-effective methods for tracking adoption of technologies, (c) identifying key adoption factors for targeting of technology, (d) testing how the system’s data can be updated and connected to other databases. • Establish an easy-accessible platform, and build capacity of key partners to use it.
Geographical focus / location	Africa, primarily eastern and western Africa, with initial focus in Ghana, Tanzania, and Uganda.
Role of the CRP/FP in the partnership	PIM provides W1-2 funding to complement bilateral/W3 funding. The Flagship 1 team plays a leading role in communications with key partners, testing of methods for tracking of adoption, and initial testing of the platform in the pilot countries.
Key CGIAR partner(s) and their (its) role(s)	IFPRI develops the tools and databases building on the HarvestChoice tools, and leads the testing of cost-effective methods for tracking adoption of technology in eastern Africa together with ASARECA.
Key ‘external’ partner(s) and their (its) role(s)	<ul style="list-style-type: none"> • ASARECA is a both a research partner (tests methods for tracking of technologies, using case studies of climbing beans and quality protein maize) and an implementation partner/client for the platform. • A CIRAD junior associate based in Institut Sénégalais de Recherches Agricoles (Dakar) works with CORAF on the mapping of seed diffusion in West Africa. • Partnerships are in the process of forming with the NARS in Ghana, Tanzania, and Uganda. As part of the pilot testing, together with ASARECA and CORAF, national partners will discuss key needs for an information platform and jointly explore how the platform can assist in decision making. • FARA has the overall mandate to move forward the African Agricultural Technology Platform, and PIM consults regularly with them to discuss implementation.

Contribution to ToC and impact pathways	This partnership is developed at the cusp of research and implementation, and is envisaged as a key vehicle to increase the rates of adoption, primarily through improved targeting of dissemination. The partnership is highly relevant to supporting increased adoption of technology (SLO Target 1), through IDO 1.4.2 Closed yield gap through improved agronomic and animal husbandry practices and 1.4.3 Enhanced genetic gain. The activity supports and is complementary to the research on development of technologies by the AFS CRPs.
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Table 3.2.4: Flagship 2 – Partnership with Michigan State University on agricultural transformation

Convenor of the Partnership and their role	IFPRI will convene a partnership with Michigan State University (MSU), building on a strong foundation of collaboration through the 2013-2018 USAID's Feed the Future Innovation Lab for Food Security Policy (FSP) project led by MSU and in which IFPRI is the key partner. PIM has provided cofinancing to FSP in Phase 1. FSP covers two of the PIM Phase 2 focus countries – Nigeria and Tanzania, both with in-country offices (led by IPFRI in Nigeria through the Nigeria Strategy Support Program, and led by MSU in Tanzania).
Specific focus and objective	Generate high-level research outputs on emerging issues related to agricultural transformation and rural incomes to support policy reviews and reforms in the areas of incomes and employment, productivity, gender and youth equity, and the enabling environment; and strengthen policy analysis capacity of regional and national institutions.
Science Agenda	Questions addressed include: What are the driving forces in farm land size dynamics, and how do these affect land access, particularly for youth and women? How does farm size influence smallholders' decisions to adopt technologies and engage in off-farm employment, and affect the dynamics of agriculture and food systems? Methods used include econometric techniques with household and farm-level data, spatial approaches using geo-referenced data, and economy wide modeling.
Geographical focus / location	Sub-Saharan Africa (Ghana, Malawi, Mozambique, Mali, Nigeria, Tanzania, Zambia).
Role of the CRP/FP in the partnership	PIM funding ensures that the IFPRI-MSU partnership is connected with research on the drivers of agricultural transformation conducted in PIM flagships and in the AFS CRPs. PIM also brings to the partnership a global and comparative perspective on agricultural transformation issues across CGIAR countries of collaboration to complement the flagship's country-level and subnational focus. Finally, PIM's participation strengthens coordinated policy engagement in CGIAR countries of collaboration.
Key CGIAR partner(s) and their (its) role(s)	IFPRI collaborates with MSU on research related to farm size dynamics, rural transformation, and political economy of policy change.
Key 'external' partner(s) and their (its) role(s)	MSU contributes to research outputs in Cluster 2.1 (Agricultural Transformation and Rural Incomes) and 2.3 (Political Economy and Policy Processes) of Flagship 2, and facilitates the achievement of policy outcomes through long-standing relationships with governments, universities, and research institutes in Africa. MSU serves as a managing partner in PIM.

<p>Contribution to ToC and impact pathways</p>	<p>This partnership contributes to the four main IDOs of Flagship 2 (1.3 Increased incomes and employment, 1.4 Increased productivity, CC2.1 Equity and inclusion achieved, CC3.1 Enabling environment improved) through research, policy dialogue, and capacity building. High-quality research will be generated on land and labor dynamics, which are major contributors to agricultural productivity and have substantial generational and gender aspects, and on political economy and policy processes. Continuous policy dialogue with government partners and stakeholder organizations in countries where MSU and IFPRI have long-standing country programs will ensure that research outputs are demand-driven and informed by the specificities of local contexts. By developing the capacity of national research institutes, regional networks, universities, and beneficiary organizations to use the findings and methods from the research, the partnership also facilitates the creation of a more conducive policy environment.</p>
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Table 3.2.5: Flagship 3 – CGIAR value chains community of practice

Convener	PIM convenes a CGIAR community of practice to develop value chain methods and tools and facilitate their dissemination to users.
Specific focus and objective	Identify priority areas of attention for value chain upgrading (by measuring the extent of losses in value due to distortions and inefficiencies); develop and test value chain tools and methods, and innovations to remove bottlenecks in value chains; identify approaches for implementing value chains interventions at scale.
Science agenda	<p>Research questions include:</p> <ul style="list-style-type: none"> • Where do bottlenecks most limit specific value chains, who is most affected, and what interventions can overcome these bottlenecks? • How large are postharvest losses, and where do they enter specific value chains? • Which models and mechanisms are particularly effective in promoting wide adoption of interventions to improve the efficiency of value chains and increase inclusion, particularly of smallholders? <p>Outputs include:</p> <ul style="list-style-type: none"> • Validated innovations for improving efficiency and inclusiveness of value chains. • Documentation of rigorous evaluations and guidelines for practitioners based on lessons learned and best practices. • Improved tools, methods, and assessment approaches posted on the tools4valuechains portal. • Expanded value chain platforms (hubs) in priority geographies to facilitate shared learning. • Typology of scaling models with the necessary contextual information. • Scaling strategies validated and documented with partners. • Handbooks and toolkits reflecting lessons learned and guidance for practitioners for scaling up.
Geographic focus/location	Global, with focus on Africa south of the Sahara and Latin America. Value chain hubs in Peru, Ethiopia and Senegal.
Role of the CRP	PIM supports collaborative research and capacity building of CGIAR value chain scientists.
Key CGIAR partners and their roles	<ul style="list-style-type: none"> • IFPRI contributes to prioritization and methods development, maintains the tools4valuechains portal, and builds research capacity. • ILRI hosts the hub in Ethiopia. • CIP hosts the hub in Peru. • CIAT supports the design and monitoring of the hubs, and facilitates expansion of the hubs to Central America. <p>All of these Centers, together with Bioversity International, ICARDA, ICRAF, ICRISAT, IITA, and WorldFish, participate in the value chains program of work to develop tools and contribute to collaborative empirical analyses.</p>

<p>Key 'external' partners and their roles</p>	<p>Wageningen University and Research Centre plays an important role in assessing the effectiveness of value chain tools and interventions.</p> <p>On the delivery side, many NGOs (including Catholic Relief Services, Oxfam, SNV, Technoserve, and World Vision International) test and implement the PIM tools. The technical Platform on the Measurement and Reduction of Food Loss and Waste was launched in December 2015 by FAO and IFPRI at the request of the G20 summit in Turkey.</p> <p>A strong national partnership has developed in Peru around the value chain hub with the Alianz Aprendizaje Peru (a learning alliance of 10 NGO and private-sector organizations). Linkages with the private sector on testing tools and interventions include Unilever and the Mosaic Company.</p> <p>The Ag-Incentives Consortium, including FAO-MAFAP, IDB, IFPRI, OECD, and the World Bank, works on measurement of distortions and strategies for addressing them. There is also close collaboration on methodological and data issues, with IFPRI providing quality control of the outputs of the computation of agricultural distortions by the international organizations, in order to influence changes towards improved practices.</p>
<p>Contribution to impact pathway and theory of change</p>	<p>The partnership leads to improved research methods on value chains. Research results and practical innovations are taken up by the private sector, NGOs and governments. Some of the tools are specifically aimed at enhancing the participation of the poor and women in markets. All tools are directed towards improving the efficiency of markets, which relate most directly to Sub-IDOs 1.2.2 Reducing market barriers, 1.2.1 Improved access to financial and other services, and 1.3.3 increased value capture by producers. See Figure 2.3.1.3.1 in Section 2.3.1.3, and Section 2.3.1.2, of the Flagship 3 narrative.</p>

Table 3.2.6: Flagship 4 – Partnership with the World Food Programme on social protection programs

Convenor of the Partnership and their role	WFP and IFPRI. In February 2012, the Executive Director of WFP and the Director General of IFPRI signed a Cooperation Framework Agreement (CFA) to foster collaboration between IFPRI and various units in WFP, including the Policy Division in Rome and country offices worldwide, to undertake program- and policy-relevant research on how to design effective food assistance programs. This CFA was developed after years of successful collaboration between WFP and IFPRI on prior research projects on social protection. In addition, IFPRI and PIM researchers have a Long Term Agreement (LTA) with the WFP Office of Evaluation to provide impact evaluation services to the WFP Policy Unit and to country offices.
Specific focus and objective	The key objectives of the partnership as laid out in the CFA include: <ul style="list-style-type: none"> • Create evidence to fill knowledge gaps on the impact and cost-effectiveness of various food assistance strategies and social protection programs implemented by WFP. • Create international public goods in the form of reproducible results, strategies and lessons relevant to donors and governments around the world. • Increase the program and policy relevance and global impact of IFPRI’s research. • Strengthen WFP’s capacity to design and undertake applied research and evaluations to fill knowledge gaps.
Science Agenda	The teams design and conduct rigorous experimental impact evaluations as learning exercises to measure the impact and cost-effectiveness of WFP programs related to social protection and food assistance. Some of these programs are conducted in humanitarian settings, while others are development programs. A major research collaboration between IFPRI and WFP that was integrated into the CFA was a three-country experimental study of the relative impact of cash transfers, food rations and food vouchers on household food security and dietary diversity. These transfer modality studies were conducted in Ecuador, Uganda and Yemen. Later, parallel studies in Niger and Bangladesh were added to complement the evidence. Research has addressed the impact of the various transfer modalities on food security, intimate partner violence, and child cognitive development (Uganda). This research shows how differences in source of income can affect food consumption patterns and child nutrition. Other work conducted under the partnership includes formative research in support of R4, the WFP initiative to provide food assistance, credit, savings, and insurance instruments in the same settings. IFPRI is collaborating with the WFP R4 pilots in Zambia and Malawi.
Geographical focus / location	The primary geographic focus is Africa south of the Sahara and South Asia, but research collaboration is possible in any of the more than 70 countries in which WFP operates. Research projects have been conducted in Bangladesh, Ecuador, Malawi, Niger, Uganda, Yemen, and Zambia.
Role of the CRP/FP in the partnership	IFPRI/PIM researchers work closely with WFP country offices and the Policy unit to identify and design impact evaluations that contribute to this broad learning agenda. IFPRI/PIM researchers lead the data collection and analysis, produce international public goods (reports and peer-reviewed journal publications), communicate the research findings, and strengthen capacity of WFP staff in country offices.

Key CGIAR partner(s) and their (its) role(s)	IFPRI is the only CGIAR Center involved in this partnership.
Key 'external' partner(s) and their (its) role(s)	WFP contributes to framing the research, and adjusts its social protection programs based on conclusions of the research. A variety of external partners also participate in this effort. For example, 3ie provided additional funding to support a cross-country study on the effect of the transfer modalities on patterns of food consumption. Other institutions contribute, including the London School of Tropical Hygiene and Medicine for the Ecuador study component on intimate partner violence, and Makerere University in Uganda for the development of measures of child cognitive development.
Contribution to ToC and impact pathways	Because the WFP Policy unit and a total of five country offices were involved in the evaluations on transfer modalities, the findings from the study have been broadly shared within WFP. The research directly contributed to an objective in the WFP medium-term plan to learn about how to design effective food assistance programs using cash transfers or vouchers rather than food rations. The results, which showed that cash and vouchers can be highly effective at improving food security, have supported an expansion of the use of these modalities at WFP.

Table 3.2.7a: Flagship 5 – Partnerships in support of tenure reforms

Convener	The African Union Commission, the Collective Action and Property Rights Initiative (CAPRI), International Land Coalition, and PIM play convening roles in different cases (<i>for the specific example of an ILC-led partnership, please refer to Table 3.2.7b</i>).
Specific focus and objective	Support resource tenure reforms through development of metrics for tracking progress and evaluating the extent to which policy instruments and implementation lead to improved tenure security overall and for specific social groups.
Science agenda	The research aims to produce the following outputs of value to governments and other implementation partners: <ul style="list-style-type: none"> • Innovative and improved research methods • Analysis of the effects of tenure and governance mechanisms on multiple outcomes • Methods and Indicators for monitoring progress on tenure security • Options for communities and individuals to improve tenure security and governance • Community of practice and resource center on tenure security and shared landscapes
Geographic focus/location	Global, with strong emphasis on Africa south of the Sahara
Role of the CRP	PIM convenes a CGIAR community of practice, and hosts CAPRI – which connects more than 400 organizations with interests in tenure issues. PIM evaluates the effectiveness of the Voluntary Guidelines for Responsible Governance of Tenure. PIM supports the African Union Commission in their assessment of the impact of land tenure reforms as part of the Land Policy Initiative for the continent. PIM validates the metrics used in the Land Governance Assessment Framework implemented by the World Bank. In Phase 2, PIM will increase the scope of its research on tenure, with forest tenure research moving from FTA to PIM.
Key CGIAR partners and their roles	Biodiversity International, CIFOR, ICRAF, ICARDA, ICRISAT, IFPRI, ILRI, IWMI, and WorldFish all have ongoing research on tenure and/or governance of natural resources within PIM. Each of these Centers contributes to developing research methods on tenure, and generating syntheses from their application on different tenure resource issues and in different contexts. IFPRI plays a coordinating role among the Centers, and leads dissemination efforts. CIFOR leads efforts to synthesize and disseminate results related to forest tenure.
Key 'external' partners and their roles	FAO leads efforts on implementation of the Voluntary Guidelines for Responsible Governance of Tenure. The African Union Commission leads the Land Policy Initiative for the continent. The World Bank leads the implementation of the Land Governance Assessment Framework. The International Land Coalition disseminates research findings to a large number of organizations, including civil society organizations. Other partners include the Access Initiative, Rights and Resources Initiative, the Tropical Forest Alliance 2020, and the International Alliance of Indigenous and Tribal Peoples of Tropical Forests and its members. Each of these contributes to disseminating research findings on land and forest governance to large audiences and promoting the use of results in policy advocacy.

<p>Contribution to impact pathway and theory of change</p>	<p>A major role of this partnership is to connect CGIAR research outputs to the broad development and policy communities that will use them. Some of the connections have been formalized through participation in governing councils or through Memorandum of Understandings (see Table 3.2.7b). The major Sub-DOs to which this partnership contributes are: 1.4.5 Increased access to productive assets, including natural resources, 3.2.1 More productive and equitable management of natural resources, and CC2.1.1 Gender-equitable control of productive assets and resources.</p>
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Table 3.2.7b: Flagship 5 – Partnerships in support of tenure reforms: International Land Coalition

Convener	International Land Coalition (ILC) – a global organization with 207 members in 67 countries, including key intergovernmental agencies and civil society organizations.
Specific focus and objective	Support pro-poor and gender-sensitive land tenure reforms, with special attention to collective land and resource rights; link research to action through collaboration with intergovernmental agencies and civil society organizations.
Science agenda	The research aims to produce the following outputs of value to governments and other implementation partners: <ul style="list-style-type: none"> • Innovative and improved research methods • Analysis of the effects of tenure and governance mechanisms on multiple outcomes • Methods and Indicators for monitoring progress on tenure security • Options for communities and individuals to improve tenure security and governance • Community of practice and resource center on tenure security and shared landscapes
Geographic focus/location	Global, with strong emphasis on Africa south of the Sahara
Role of the CRP	PIM convenes a CGIAR community of practice, and hosts CAPRI – which connects more than 400 organizations with interests in tenure issues. In Phase 2, PIM will increase the scope of its research on tenure, with forest tenure research moving from FTA to PIM.
Key CGIAR partners and their roles	IFPRI is a founding member of ILC. Since 2004, IFPRI serves on the Coalition Council, representing tenure research across CGIAR through the CAPRI program. Through this and increased CGIAR membership in ILC, the appreciation of the contributions of research to ILC’s mission of advocacy and building the capacity of governments and civil society organizations to strengthen tenure security of the poor has increased. In particular, CGIAR’s contributions have encouraged ILC to focus on collective land tenure, rather than on individual tenure only. IFPRI plays a coordinating role among the involved Centers, and leads dissemination efforts. CIFOR, ICRAF, ILRI, and IWMI are members of ILC. Bioversity International has strong working relationships with ILC. IFPRI and ICRAF represent CGIAR on the ILC Coalition Council. ILRI hosts a joint appointment with ILC focusing on pastoral land tenure. Each of these Centers contributes to developing research methods on tenure, and generating syntheses from their application on different tenure resource issues and in different contexts. CIFOR leads efforts to synthesize and disseminate results related to forest tenure.
Key ‘external’ partners and their roles	International Land Coalition is a global organization with 207 members in 67 countries, including key intergovernmental agencies and civil society organizations. Among those members, FAO leads efforts on implementation of the Voluntary Guidelines for Responsible Governance of Tenure. The African Union leads the Land Policy Initiative for the continent. The World Bank leads the implementation of the Land Governance Assessment Framework. The Land Portal (started by ILC, now a separate foundation) provides a centralized platform for disseminating reliable information on tenure; PIM tenure research is featured on the Land Portal, giving it higher visibility.

	<p>ILC has set up regional networks of civil society and intergovernmental members to discuss key regional issues, and national “land observatories” which monitor progress on tenure security. The latter are particularly important for uptake of the PIM research methods and findings.</p> <p>In 2016, ILC co-convened the Global Call to Action on Community and Indigenous Land Rights, drawing on evidence provided by CGIAR research.</p>
<p>Contribution to impact pathway and theory of change</p>	<p>The ILC provides a key mechanism for PIM to build partnerships with a large number of key actors involved in advocacy and implementation of tenure reforms. ILC has been an active partner in shaping the development of PIM Flagship 5, drawing on its membership and the 2015 Global Land Forum to identify the key emerging issues in tenure for which research is needed. Through ILC, PIM’s research findings on land and resource governance reach key stakeholders (e.g. national Land Alliances) who can use them in policy advocacy and implementation – thus contributing to Sub-IDO CC4.1.4 Increased capacity for innovations in partner development organizations and in poor and vulnerable communities. The partnership with ILC plays a key role in linking PIM’s work to the implementation of the Voluntary Guidelines for Responsible Governance of Tenure (Sub-IDO CC3.1.3 Conducive agricultural policy environment). As the reforms are implemented, they lead to Increased access to productive assets, including natural resources (Sub-IDO 1.4.5); More productive and equitable management of natural resources (Sub-IDO 3.2.1); and Gender-equitable control of productive assets and resources (Sub-IDO CC2.1.1).</p>

Table 3.2.8: Flagship 6 – Partnership to generate better data on gender-informed development indicators

Convener	The partnership is convened jointly by PIM, IFPRI, the Gender Innovation Lab and the Living Standard Measurement Study (LSMS) teams at the World Bank, and the International Rescue Committee (IRC).
Specific focus and objective	Generate better data on gender-informed development indicators in order to track progress in promoting gender equality, design interventions to address gender-based constraints, and rigorously evaluate their impact.
Science agenda	This research aims to identify best practices for measuring men’s and women’s time use, control over assets, and agency – three key constructs in women’s empowerment, known both for their centrality in current policy debates on gender equality and for the challenges posed by their measurement. Specific goals include: (a) assessing the relative quality of existing methods for measuring time use, control over assets, and agency, (b) designing and testing new methods, and (c) generating evidence on which measurement methods are most appropriate for specific contexts and policy and research questions.
Geographic focus/location	Global relevance, with initial focus on Africa
Role of the CRP	PIM supports all components of this partnership, and will take the lead on a review of methods for measuring ownership, control, and use of assets. PIM will also help design and assess methodological innovations, drawing from the team’s experience with vignettes and survey experiments.
Key CGIAR partners and their roles	Building on their experience designing and implementing the Women’s Empowerment in Agriculture Index (WEAI), and particularly the module on time use, the IFPRI team will lead the review on methods for measuring time use, and development and testing of different methods.
Key ‘external’ partners and their roles	The Gender Innovation Lab’s experience in measuring gender gaps in economic outcomes and IRC’s expertise in developing psychological indicators equip them to take the lead in reviewing and testing best practices for methods of measuring agency. The LSMS team will work with PIM to identify best practices in asset measurement and, more broadly, will contribute their expertise in implementation of nationally-representative surveys and methodological experiments. This collaboration will ensure cross-country and cross-sectoral comparability by testing methodological innovations in a variety of contexts and across population groups, from rural farmers to refugees and from adolescent girls to entrepreneurs.
Contribution to impact pathway and theory of change	This partnership includes organizations who can use the results directly in their own work (e.g. the World Bank), as well as exert influence on other organizations. Through the use of better methods, the partnership contributes directly and indirectly to all of the Sub-IDOs of focus in Flagship 6. In particular, improving the reliability of sex-disaggregated data on ownership, control, and use of assets will improve the capacity of CGIAR and partners to identify interventions that effectively reduce gender gaps in control of assets (Sub-IDO CC2.1.1 Gender-equitable control of productive assets and resources). More accurate measures of time use will enhance ability to design and evaluate interventions to reduce women’s drudgery (IDO CC2.1.2 Technologies that reduce women’s labor and energy expenditure

	<p>developed and disseminated). Better measures of agency will increase the understanding of how to promote women’s involvement in decision making (IDO CC2.1.3 Improved capacity of women and young people to participate in decision making). In addition, this partnership will enable the transfer of know-how and learning across institutions, and expand the network available to disseminate the results of the proposed experiments (IDO CC4.1.1 Enhanced institutional capacity of partner research organizations; CC4.1.2 Enhanced individual capacity in partner research organizations through training and exchange).</p>
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3.3 PIM Capacity Development Strategy

Introduction: PIM's approaches to capacity development

PIM contributes to **increased capacity of two main groups: researchers, and implementation partners**. Researchers are provided with new analytical tools and training in how to use them; they also receive training in how to convey their results to actors in the policy process. Implementation partners receive assistance in translating the research findings into strategies, programs, and policies and in monitoring impact. Capacity building contributes to the four channels of influence of PIM described in Section 1.0.3. PIM does not engage in downstream capacity building directly serving farmers and local market agents, since that is already a strong focus of extension services, NGOs, and large private companies.

PIM is well positioned to build **policy research capacity** within CGIAR through the PIM-led cross-Center/CRP communities of practice (for example, foresight modeling, value chain analysis, and gender research). In Phase 2 PIM will convene an annual meeting of CGIAR social scientists to strengthen professional connections and share results. In addition, PIM endeavors to strengthen policy research capacities of national research institutions, including independent policy think-tanks, policy analysis units in governmental bodies, universities, and national agricultural research organizations. PIM's research capacity building activities span the national, regional, and global levels. Priority is given to selected CGIAR countries of collaboration (Bangladesh, Ethiopia, Ghana, India, Malawi, Nigeria, Tanzania), but PIM also invests in developing policy research capacity in other countries where the demand is strong for an increased evidence base for agricultural policy reforms and which possess a pool of skilled national policy analysts (in the Middle East and North Africa, for example).

Engagement in **strengthening the capacity of researchers to communicate outputs to policy makers, and the capacity of immediate users (for example, government bodies, NGOs, and the private sector) to take up these results**, has been evaluated as particularly successful in countries where PIM's Lead Center (IFPRI) has a Country Strategy Support Program (CSSP) (Kuyvenhoven 2014). Success derives from the sustained relationship and on-the-ground presence. PIM leverages the in-house analytical capacity of international organizations and NGOs, which have their own capacity but put primary emphasis on operational work. These organizations include FAO, IFAD, the World Bank, the World Food Programme, and World Vision International.

In Phase 2 PIM is launching **a new research cluster on understanding the political economy of policy change** (Cluster 2.3, see Flagship 2 narrative). This work will increase the capacity of CGIAR and partners to influence policy outcomes through research.

Role of capacity development in PIM's channels of influence

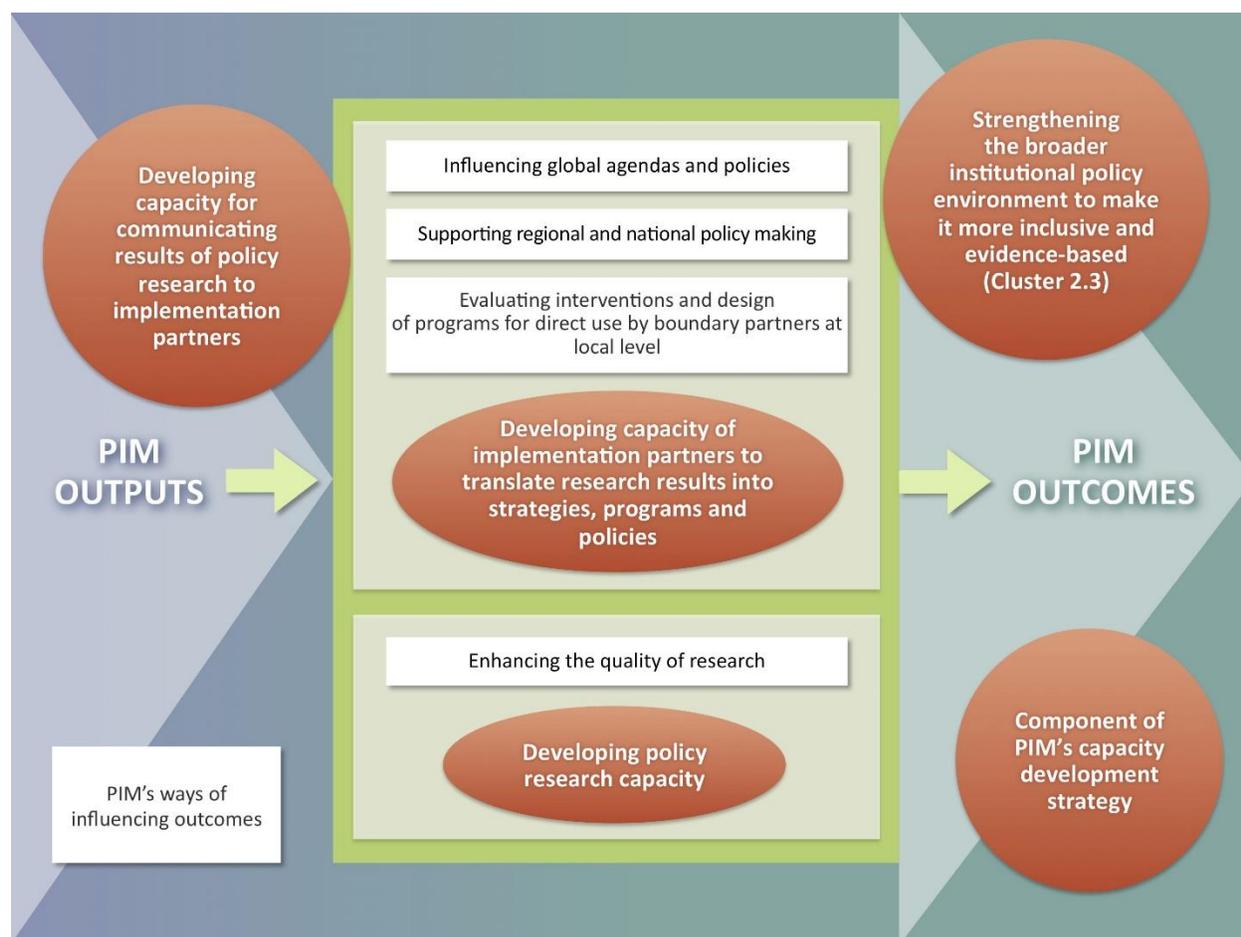
Figure 3.3.1 shows the contribution of the different types of capacity development mentioned in the previous section along PIM's channels of influence.

Research capacity strengthening is critical for the fourth channel of influence, which aims to improve research quality in PIM thematic areas. Capacity strengthening on communicating research outputs and on using them is essential for PIM's research to be able to inform policy debates. This type of capacity strengthening is also very important in PIM's mechanism of influence at the local level: developing innovations that help the private sector and NGOs to address challenges in strengthening value chains for

the poor, to manage natural resources in shared landscapes, and to implement effective social protection programs. An improved institutional policy environment through the work in Cluster 2.3 is expected to increase the value of PIM outputs in decision-making processes and to lead to more assured outcomes.

Capacity strengthening further down the impact pathway, such as training of beneficiaries (for example, farmers and market agents) on how to engage with research and innovation, is better left to extension systems, development organizations, and private-sector firms, which have the appropriate mandates, incentives, and resources for large-scale capacity development activities. Thus, such activities are not conducted by PIM.

Figure 3.3.1: Contribution of capacity development activities to PIM’s channels of influence



Strategic capacity development actions

PIM focuses on four elements of the CGIAR Capacity Development Framework:

- **Design and delivery of innovative learning materials and approaches:** All of PIM’s flagships have a strong comparative advantage in development of and training on new tools and methods. These are used within the PIM-coordinated successful communities of practice (quantitative foresight modeling, value-chain analysis, gender research, natural resource governance, and in Phase 2 analysis of technology adoption, and policy processes).

- **Gender-sensitive approaches throughout capacity development:** In Phase 1 PIM provided support to the CGIAR Gender Network and developed materials for use throughout CGIAR, such as [guidelines](#) for collecting sex-disaggregated data, and [EnGendering Data](#) – a blog on collecting and analyzing sex-disaggregated data. In Phase 2, PIM will continue to develop methods and guidelines on gender analysis, and host the CGIAR Collaborative Platform for Gender Research.
- **Institutional strengthening:** PIM will continue to strengthen the analytical capacity of research organizations, policy think-tanks, and government policy advisory units in partner countries and regions. Examples of this work can be seen in the strong and long-term relationships with local research partners, such as the Ethiopian Development Research Institute (through the Ethiopia Strategy Support Program), and the work with ASARECA and CORAF to geo-reference their M&E systems.
- **Organizational development:** PIM’s research under Flagship 1 helps partner agricultural research organizations improve management and lobby for funds. PIM’s investment in research on policies for agricultural science and technology, genetic resources, and innovation will increase in Phase 2, in furtherance of the commitment of CGIAR to support implementation of the Science Agenda for Agriculture in Africa.

To contribute to these objectives, a range of capacity development actions will be undertaken. In its external evaluation of IFPRI’s capacity strengthening activities over the period 1985-2010, Kuyvenhoven (2014) identified five successful approaches: (a) joint research; (b) training programs (visiting fellows, MSc, and PhD support schemes); (c) support for building data systems, survey work, processing, and analysis activities via institutional development, training, and research; (d) delivering capacity strengthening activities through comprehensive country programs; and (e) capacity strengthening that is embedded or exclusively implemented in thematic programs that cover wider geographical areas and bring a comparative perspective. These lessons will be used in designing PIM’s capacity strengthening activities within the six PIM flagships in the following priority thematic areas:

- Flagship 1 – Technological Innovation and Sustainable Intensification: **on use of foresight models and tools for agriculture and on methods for promoting and assessing technology adoption**
- Flagship 2 – Economywide Factors Affecting Agricultural Growth and Rural Transformation: **on the use of Social Accounting Matrices, expenditure databases, computable general equilibrium models, and other national models for policy analysis**
- Flagship 3 – Inclusive and Efficient Value Chains: **on methods for diagnosing value chain problems and opportunities and approaches for scaling up value chain interventions**
- Flagship 4 – Social Protection for Agriculture and Resilience: **on operationalizing improved safety net mechanisms and programs**
- Flagship 5 – Governance of Natural Resources: **on methods for analysis of tenure security and resource governance**
- Flagship 6 – Cross-cutting Gender Research and Coordination: **on methods for collection and analysis of sex-disaggregated data**

Details of capacity strengthening activities at the flagship level are given in the flagship narratives.

Indicators that track progress and contribution to capacity development Sub-IDOs

The capacity development IDO is one of the two IDOs that PIM contributes most to. Figure 3.3.2 displays PIM’s contribution to the various capacity development Sub-IDOs, with the corresponding intensity of the contribution.

Figure 3.3.2: Contribution of PIM to capacity development Sub-IDOs, IDOs, and cross-cutting issues

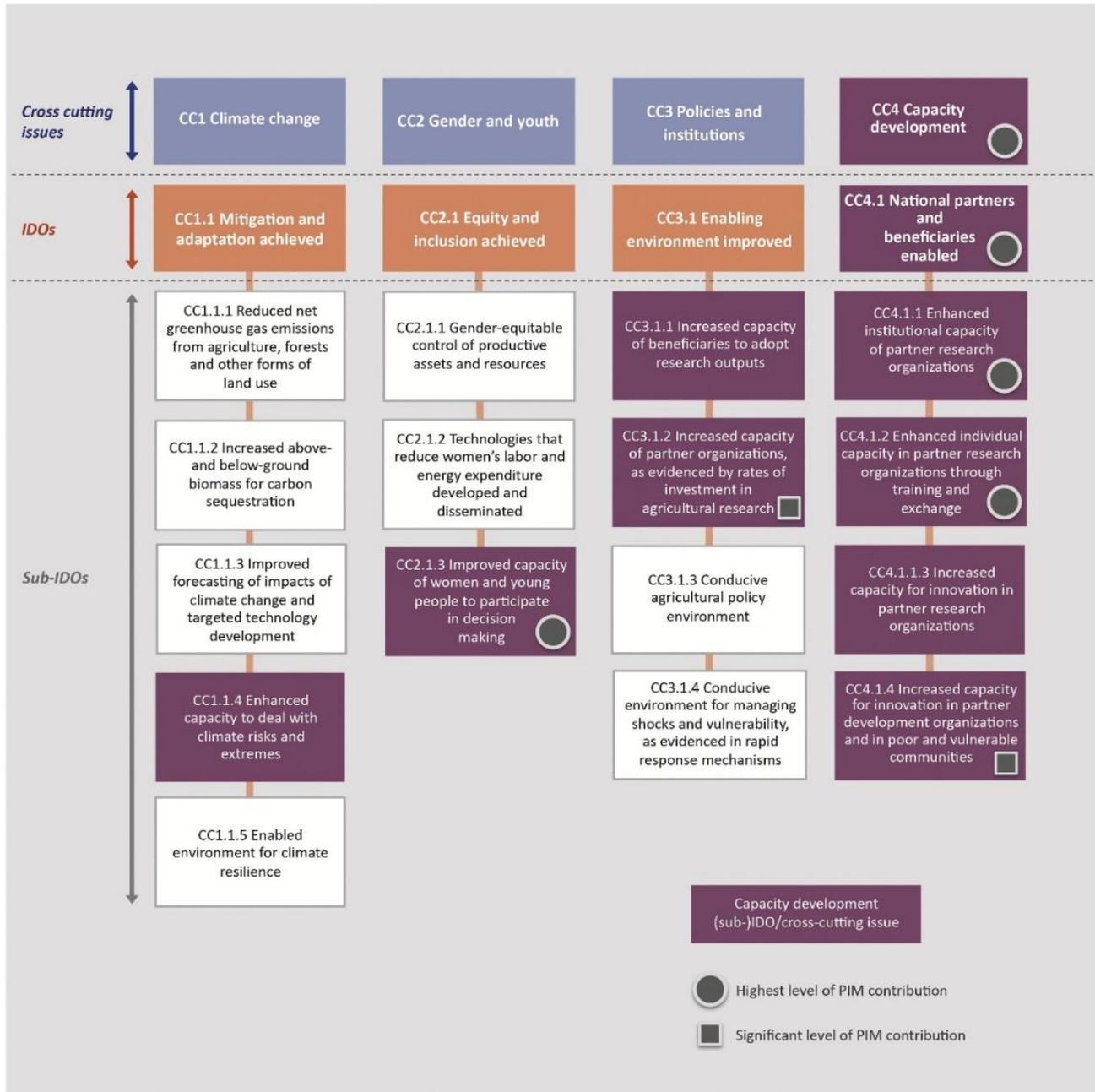


Table 3.3.1 includes the elements of the CGIAR Capacity Development (CapDev) framework most relevant for PIM (that is, implemented at high intensity, see above and Section 1.0.10), together with associated indicators. These indicators will be tracked globally, using a template to be filled by activity leaders and reviewed by the PIM Program Management Unit.

Table 3.3.1: Elements of the CGIAR Capacity Development (CapDev) framework of most relevance for PIM, with associated indicators

CapDev element	Indicators
Design and delivery of innovative learning materials and approaches	<ul style="list-style-type: none"> • Number of partner organizations who use materials and approaches • Number of people trained (disaggregated by sex, job/role, location, literacy)
Gender-sensitive approaches throughout capacity development	<ul style="list-style-type: none"> • Number of CapDev activities in gender approaches/toolkits initiated (disaggregated by type) • Number of joint evaluations of projects/programs/policies using gender analysis toolkit
Institutional strengthening	<ul style="list-style-type: none"> • Number of policy-oriented knowledge sharing/training activities targeting human resources in NARS and other national research and policy organizations (disaggregated by policy/technical focus) • Number of strategic plan recommendations implemented (disaggregated by agency) • Number of policy decisions taken (in part) based on engagement and information dissemination by CRPs
Organizational development	<ul style="list-style-type: none"> • Number of workshops or trainings provided on research management • Increase in funded research projects led by NARS and research partners • Number of knowledge products targeting end users (for example, policy briefs)

Budget and resource allocation

The **PIM capacity development budget for 2017** is estimated at **\$17.9M**, which represents **19% of the total PIM budget** (Table 3.3.2). The capacity development component of each flagship is derived by adding up the flagship contributions to the capacity development Sub-IDOs, i.e. Sub-IDOs CC2.1.3, CC3.1.2, CC4.1.1, CC4.1.2, CC4.1.4 (see Table C of the Performance Indicators Matrix). It is assumed that flagship contributions towards other Sub-IDOs do not count as capacity development. We add \$100K for capacity development activities at program level.

Table 3.3.2: PIM 2017 capacity development budget

Component of capacity development budget	2017 gender budget, in \$M	% of total budget
Flagship 1	4.5	20
Flagship 2	5.2	25
Flagship 3	2.6	14
Flagship 4	1.4	15
Flagship 5	2.5	15
Flagship 6	1.8	52
Management and support costs	0.1	3
TOTAL	17.9	19

3.4 Gender Strategy

This annex responds to guidance received from the Consortium Office and has a dual purpose: (a) to show how key findings from PIM's gender research in Phase 1 have informed research priority-setting within the PIM flagships in Phase 2; and (b) to describe how gender research will be operationalized in PIM, including the Monitoring and Evaluation framework for the gender dimensions of the program.

Integration of gender into PIM's Phase 2 research priority setting

Flagship 1 – Technological Innovation and Sustainable Intensification

The Agricultural Science and Technology Indicators (ASTI) project provides the only comprehensive source of sex-disaggregated data on agricultural research staffing in developing countries. On average, less than one quarter of agricultural researchers in developing countries are women, and women are generally concentrated at lower job classification levels (Beintema 2014), **confirming that PIM's efforts to strengthen agricultural R&D systems must include attention to gender imbalances within NARS.**

During Phase 1, work on extension methods in Mozambique showed that men point-of-contact farmers were less likely to train women than men farmers in their villages, and that training women contact farmers increased training of women farmers (Kondylis et al. 2014). Other PIM research from East Africa found that Volunteer Farmer Trainers (VFTs) can reduce the gender gap in access to information (Franzel et al. forthcoming), mainly because of gender biases in hiring public extension staff which to some degree are overcome by VFT programs. Phase 2 will continue research along these lines **to assess the extent to which innovative extension methods not only improve access to information for women, but also lead to outcomes such as increased adoption of technology and productivity.** FAO has expressed interest in partnering with PIM on the issue of gender and extension.

In Phase 2, PIM will invest in **generating gender insights within its foresight modeling work and in the support to the Virtual Information Platform for Africa**, two areas where not much progress on gender was made in Phase 1. Both activities are exploring links to microlevel datasets to enable larger-scale analyses to be linked to distributional effects across gender, age, and poverty levels. This cannot be done at a global level due to data limitations, but will be explored in priority countries. To support these efforts, work on expanding the understanding of gender preferences in the demand for and adoption of technology will be intensified (this research was initiated in Phase 1, but analyses are not available at the time of proposal submission).

Flagship 2 – Economywide Factors Affecting Agricultural Growth and Rural Transformation

Flagship 2 focuses on job creation for young men and women, and addresses the factors that affect occupational choice. The work identifies systemic barriers (for example, in access to land, finance, and information) that constrain livelihood strategies, and examines how these differ for young men and women. This flagship also investigates **the differential impacts of public expenditures on men and women, the degree of women's inclusion in the design and advocacy of policies, and methods to lift barriers to women's involvement.**

In Phase 1, research analyzed migration patterns and their implications for agriculture. While women's responsibilities on the farm increase with the migration of male household members (de Brauw et al.

2013), their engagement in decision making regarding agricultural investments may still be restricted. Some studies in Asia indicate that women, as migrant breadwinners or managers of migrant households, may gain control over resources and determine the end usages of expenditures (Mueller et al. 2015). Research in Phase 2 will assess **how gendered migration patterns and off-farm employment trends in Asia and Africa influence women’s bargaining power, agricultural investments, and resulting productivity** (in conjunction with Flagship 6). In addition, the team will seek to understand the **gender-related employment opportunities in agriculture and nonagricultural sectors**, with attention to the constraints faced by women beyond intrahousehold decision making. The constraints explored will include economywide factors, such as policies affecting land access and labor mobility, and linkages between urbanization and dynamics in rural livelihood diversification. This will enable analyses of policy effects to better reflect gender outcomes.

Flagship 3 – Inclusive and Efficient Value Chains

Flagship 3 identifies interventions that increase gender equity in control of assets and in opportunities for employment along value chains. In addition, this flagship develops [tools](#) for gender analysis in value chains, which will be disseminated through the value chain hubs.

Research from Phase 1 confirmed the hypothesis that asset endowment is critical to successful participation in value chains (Johnson et al. 2016; Stoian et al. 2016; Donovan and Poole 2016), with important implications for women – who typically have lower resource endowments. A recent PIM compendium of value chains case studies concludes that “gender issues need to be considered specifically in the design, implementation, and evaluation of interventions” (Devaux et al. 2016). In Phase 1, PIM supported an analysis of the ability of quantitative tools to measure gender differences within value chains (Madrigal et al. 2016), as well as the **incorporation of an explicit gender lens into the PIM value chains tools** (e.g. LINK, PMCA and 5 Capitals); the gendered version of these tools will be further validated and disseminated for wider use by the private sector and NGOs in Phase 2. **Interventions to address gender inclusiveness in value chains will aim to overcome poor endowments of resources (such as land) and constraints in accessing credit and inputs** (for example, through testing of contract farming arrangements). Attention will be accorded to creation of wage work along the value chain and gender implications of wage employment.

Flagship 4 – Social Protection for Agriculture and Resilience

Flagship 4 studies **how social protection programs assist women and men, change intrahousehold dynamics, and include gender in targeting and choice of instruments for delivery**. Previous research has demonstrated that social protection programs can be an effective mechanism for increasing women’s control over household decisions in the spheres of child education and health and durable goods purchases (de Brauw et al. 2014; Ahmed et al. 2009). In Phase 2, researchers will explore **how transfers may also improve women’s control over agricultural plots** and the associated harvests.

A review featured in the FAO/IFPRI book *Gender in Agriculture: Closing the Knowledge Gap* suggests that financial products designed to allow women to save, borrow, and insure are essential for strengthening their roles as producers and broadening their opportunities (Fletschner and Kenney 2011). In Phase 1, PIM explored this issue through experimental research. In a study in Burkina Faso, Delavallade et al. (2015) found that female farm managers were less likely than male farm managers to purchase agricultural insurance, and more likely than male farm managers to invest in savings for emergencies – perhaps because women are usually the ones who have to deal with health risks associated with fertility and

childcare. These differences were associated with higher productivity on farms managed by men farmers than by women farmers, showing that **the offering of insurance products alone may exacerbate gender inequities**. On the other hand, a PIM study in Bangladesh (Clarke and Kumar 2015) found men and women equally likely to state intent to purchase index-based weather insurance, though women were less literate on issues of finance and risk, putting them at a disadvantage in purchasing insurance. In Phase 2, PIM will strive to identify the circumstances that explain these different results, and to identify the best context-specific approaches for addressing gender. This flagship will also examine the effects of integrated social protection and agricultural interventions to assist men and women to manage shocks and risks, while at the same time being able to invest in agriculture and build assets.

Flagship 5 – Governance of Natural Resources

Flagship 5 explores pathways to strengthen tenure security of particular groups, especially women, drawing on assessments of promising innovations. Research in Phase 1 contributed to better understanding of **gender-based differences in tenure security and decision making over resources** as well as how interventions can reduce inequities.

PIM's research in Phase 1 contributed to the development of methods for measuring tenure security at intrahousehold level. For example, land tenure survey modules developed for Nigeria were adapted for the Living Standards Measurement Study (LSMS) in other countries. These instruments allow disaggregation by gender and age. In Phase 2, PIM will analyze these data and **expand the development of sex-disaggregated data to include collective/community land tenure as well as rights to other resources such as water, trees, and fish stocks**.

Phase 1 studies from Ethiopia, Mozambique, and Nigeria show the need for pragmatic and context-specific approaches to land policy and governance interventions to improve tenure security for women (Hagos 2012; Ghebru et al. 2014; Ghebru and Holden 2013). Putting women's names and photos on land certificates in Ethiopia can contribute to their tenure security and investment in land, provided that women know about these provisions (Kumar and Quisumbing 2015). Community-based legal assistance is an innovative approach to increasing women's likelihood of understanding and acting on their rights to land (Behrman et al. 2013; Billings et al. 2014). This work builds upon existing research suggesting that enhancing women's roles can open new opportunities for institutional change (Ratner and Smith 2014). These initial results show promise for **identifying useful approaches to strengthening the tenure security of women; in Phase 2, PIM will continue to validate and support their introduction with governments (mainly in connection with the Land Policy Initiative of the African Union Commission)**.

With regards to governance of resources in landscapes, ICRAF, CIFOR, and WorldFish have found that multistakeholder processes build trust, diminish power asymmetries, and better align divergent interests in ways that can yield more equitable outcomes for resource policy and institutional reform. At the same time, disadvantaged groups need support and assistance to engage effectively in key forums (Leimona et al. 2015; Ratner et al. 2014). In Phase 2, PIM will build on case study work to more systematically understand **how different models for governance of shared resources can accommodate interests and benefit multiple stakeholders, including women**.

Flagship 6 – Cross-cutting Gender Research and Coordination

In Phase 1 PIM invested significantly in **development of gender research methods**, and produced [guidelines for collecting sex-disaggregated data](#) and a review of qualitative gender research methods (Rubin forthcoming). In Phase 2, as leader of the CGIAR Collaborative Platform for Gender Research, PIM will be well-positioned to **disseminate these guidelines widely**.

PIM, IFPRI, IRC, and the World Bank are reviewing methods of measuring men and women’s time use, asset control, and agency. In Phase 2, the team will analyze existing data on these topics, and implement and assess measurement innovations in order to facilitate more informed policy recommendations to enhance gender equity.

Numerous partners used the Women’s Empowerment in Agriculture (WEAI) questionnaire in Phase 1. Availability of additional WEAI data will allow continued validations of the tool and research on women’s empowerment in Phase 2. The team will explore **new applications of the WEAI** in the areas of labor force participation, technology adoption, and agricultural productivity.

The book [“Gender in Agriculture: Closing the Knowledge Gap”](#), the result of a **collaboration between FAO and IFPRI** during Phase 1, presents the evidence base on gender in agriculture, and highlights the many gaps that remain. PIM also analyzed sex-disaggregated data on landownership and management in Africa and Asia, finding large gender gaps, data gaps, and discrepancies in the reporting of indicators (Doss et al. 2015; Kieran et al. 2015). FAO’s [Gender and Land Rights Database](#) has adopted PIM’s conceptual framework and indicators of these gaps (De la O Campos et al. 2015). In Phase 2, PIM will continue to work with FAO to learn from the use of these indicators and improve other gender indicators.

Findings from Phase 1 indicate that households commonly report **men and women’s “jointness” in decision making, actions, and asset ownership**. Since existing gender analysis has tended to focus on differences between men and women, little is known about the importance of jointness, and this topic will be emphasized in Phase 2.

Monitoring and Evaluation of the program’s gender dimensions

Starting in Phase 1, PIM researchers are asked during the research design stage to determine whether gender is relevant to the proposed research. If not relevant, they are asked why. If relevant, they are asked to classify the extent to which deliverables incorporate gender. This facilitates monitoring of both strategic and integrated gender dimensions of the program.² **The leader of Flagship 6 – a gender expert from outside CGIAR – also plays a strong gender coordination role for the entire PIM portfolio.** With assistance from two full-time junior scientists, the leader of Flagship 6 ensures that gender issues are addressed, where relevant, in all flagships, and that there is coherence and communication across all activities with a gender dimension. In addition, **the gender team provides guidance and feedback on gender research questions and methods, thereby building the capacity of researchers to conduct rigorous gender analysis.** The leader of Flagship 6 will oversee the work of the CGIAR Collaborative Platform for Gender Research, and the Platform Coordinator will also report to a Steering Committee to provide for independent oversight (see Section 2.6.1.12 of the Flagship 6 narrative).

² See the CGIAR Gender Monitoring Framework for definitions of these terms.

The Program Management Unit **monitors gender work across the portfolio by collecting indicators of progress in the annual activity progress reports** (see Table 3.4.1). These reflect the proportion of activities collecting sex-disaggregated data, as a percentage of activities collecting primary data; the percentage of activities analyzing sex-disaggregated data; and the proportion of activities using findings to reduce identified gender inequities or to explicitly target women, girls, or both. In compliance with the CGIAR Gender Monitoring Framework, PIM's goal in Phase 2 is for all individual-level data to be sex-disaggregated. The information collected in the activity progress reports also helps to identify areas of the portfolio that may need increased attention from the gender team to address methodological issues. In response to recommendations from the PIM external evaluation team, self-reporting by researchers will be augmented by selective verification.

A subset of PIM outcomes will be assessed to determine the role of gender analysis in achievement of outcomes. This work will start modestly, and expand over time. In addition, selected impact evaluations will be conducted to measure the effect of various interventions on relevant gender gaps. These impact evaluations will usually be undertaken with the implementation partners funding and administering the projects.

Table 3.4.1: PIM gender Monitoring and Evaluation framework

What will be monitored or evaluated	Indicators of progress	Data collection methods	Frequency	Responsible parties
Gender research integration in PIM portfolio	Percentage of data collection activities generating sex-disaggregated data (number of activities collecting sex-disaggregated data/number of activities collecting primary data)	Activity progress reports	Annual	Reported by Activity Leaders Assessed by gender support staff
	Percentage of activities presenting findings from gender analysis	Activity progress reports	Annual	Reported by Activity Leaders Assessed by gender support staff
	Percentage of activities that use sex-disaggregated data for priority-setting	Activity progress reports	Annual	Reported by Activity Leaders Assessed by gender support staff
	Percentage of activities that explicitly target women, girls, or both	Activity progress reports	Annual	Reported by Activity Leaders Assessed by gender support staff
	Number of people who participated in trainings focused on gender, women, or girls	Activity progress reports	Annual	Reported by Activity Leaders Assessed by gender support staff
Research outcomes	Quality of gender analysis conducted by PIM researchers	Number of ISI publications from activities indicating significant/some focus on gender	Annual	Assessed by Flagship 6 leader and gender support staff
Development outcomes	Reduction in gender gap in control over productive assets and resources (Sub-IDO CC2.1.1)	Reports from development partners and impact evaluation in selected cases	3-5 years	PIM Senior Research Fellow, with input from gender team
	Improved capacity of women and young people to participate in decision making (Sub-IDO CC2.1.3)	Reports from development partners and impact evaluation in selected cases	3-5 years	PIM Senior Research Fellow, with input from gender team

3.5 Youth Strategy

Introduction

PIM's Youth Strategy addresses the question: **How can changes in the enabling environment surrounding agrifood systems create good opportunities, and especially jobs, for young men and women?** Answering this question requires an understanding of opportunities that young people currently have, what holds them back, and how obstacles can be lessened or removed. In line with PIM's role as an Integrating Program that focuses on the enabling environment, emphasis is on systemic barriers to success. This research contributes to achieving IDO CC2.1 (Equity and inclusion achieved), and particularly Sub-IDOs CC2.1.1 (Gender-equitable control of productive assets and resources) and CC2.1.3 (Improved capacity of women and young people to participate in decision making).

How does the program's Youth Strategy contribute to PIM's overall objectives?

As reflected in Figure 1.0.6.2 (Section 1.0.6), PIM's research portfolio is designed to support **growth** of agriculture and the rural economy, **sustainability** of the natural resource base, and **inclusion** of women, young people, and marginalized groups. Attention to youth employment is important for all three. Where the population is growing rapidly, successful integration of young people into the labor force yields a "youth dividend" as new entrants bring energy, talent, and enthusiasm to try new things. If young people cannot be well integrated, they instead raise the dependency ratio, and act as a drag on investment and growth. Young people can contribute to sustainability by adopting new technologies that have low carbon footprints and use natural resources more efficiently. Conversely, unemployed young people, especially young men, are prey to gangs and militias, with resulting resource-destroying conflict. Inclusion of young people is particularly important for poverty reduction, since today's excluded young people are tomorrow's poor. The emphasis on inclusion highlights **the linkages of work on youth with the work on gender**. PIM's work on youth is less mature than the gender work, but can be expanded using many of the approaches developed for gender research. Factoring both gender and age into the analysis is often necessary, since, for example, the remedies for poverty and exclusion of elderly women differ from those for young women.

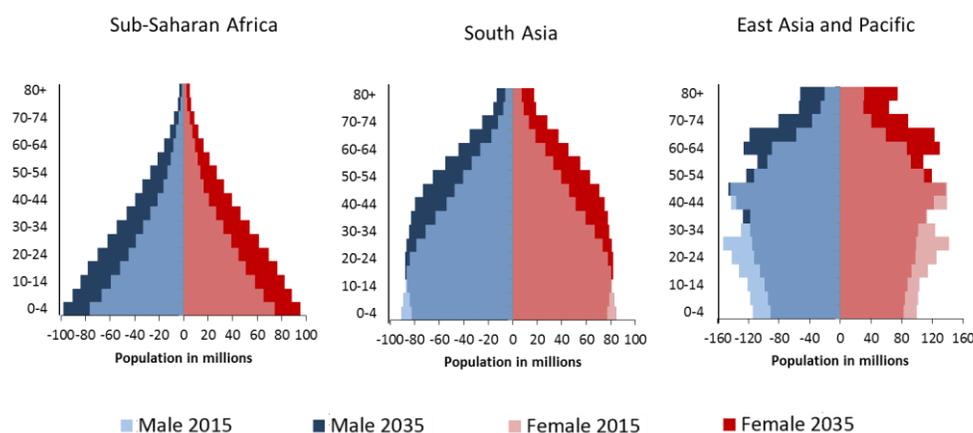
The youth employment challenges

As can be seen in Figure 3.5.1, **demography** determines the size of the youth cohort and its location. In the period up to 2035, the number of young Africans between 15 and 24 years old will expand significantly, that in South Asia will roughly stabilize, and the number in East Asia and the Pacific will drop. By 2050, the rural population in Africa south of the Sahara will still be growing, while that in East Asia and South Asia will decline by 50% and 10%, respectively (Losch, Fréguin-Gresh and White 2012).

The youth bulge in Africa is appearing at a time when jobs in labor-intensive manufacturing are growing too slowly to absorb the increased supply of young workers, expansion of the service sector will be pinched by the slow-down in the commodity boom, and opportunities to migrate are closing. Agriculture will need to absorb the waves of new workers reaching adulthood in rural areas. The challenge to do so without pulling labor productivity down (and hence exacerbating poverty) or over-taxing natural resources is unprecedented historically. **PIM's work on youth in Phase 2 therefore focuses on Africa.** Meeting the challenge will require strong leadership based on good analytics of the underlying processes and real-time empirical evidence to track developments. PIM is well-placed to make a contribution to this

effort. Depending on the interest of national counterparts and development partners, detailed work will be undertaken in **Ethiopia, Ghana, Malawi, Mozambique, Nigeria, Tanzania, and/or Zambia**.

Figure 3.5.1: Numbers of people by age group and gender in Africa south of the Sahara, South Asia, and East Asia and the Pacific (Source: World Bank 2014, based on United Nations 2011)



Types of agricultural employment and contributions of PIM

With appropriate public policy and investment in research and development, African agriculture can absorb new young workers and simultaneously offer better livelihoods. As shown in Table 3.5.1, young people enter agriculture through four different types of employment. Each of these requires land, capital, and skills in different proportions, and the requisites can be supplied with appropriate policy change and institution reforms.

Table 3.5.1: Types of agricultural employment and their requirements (Source: Brooks et al. 2013)

Type of employment	Need for land	Need for capital	Need for skills
Type 1 - Full-time on existing family holding	None	Medium	Medium
Type 2 - Full-time on new holding	High	High	High
Type 3 - Part-time combined with household enterprise (for example, sale of services)	Low	Medium	High
Type 4 - Off-farm wage work along the value chain	None	None	Medium or High

Type 1: Full-time employment on existing family holding. Young people who farm a subdivided family parcel need skills and capital to shift to higher-value agriculture, as well as good access to markets. To assist young people engaged in this type of employment, research is needed on modalities for delivery of extension and financial services and interventions to improve the efficiency of value chains. PIM undertakes such research in Flagships 1, 3, 4, and 6. Flagship 1 addresses methods of communication and extension that facilitate successful adoption of technologies and management practices that perform well within given agroecological conditions. Flagship 3 examines options for efficient contracting with buyers and processors. Flagship 4 addresses insurance and financial instruments that can assist in managing the higher risk inherent in high-value agriculture. Flagship 6 examines the gender-based labor demands of

different technologies and extension techniques, gender dimensions of contracting and group formation, and gendered preferences for instruments of risk management.

Type 2: Full-time on new holding. Young farmers who establish new and separate holdings need land, start-up capital, and advisory services or training. In addition to the research noted above, analysis of land tenure, land markets, and changes in the age and sex distribution of landownership are very important for this employment path to be successful. PIM contributes to this work through Flagships 2, 5, and 6. This includes evaluating gender and age effects of options for strengthening tenure security and land markets. Changes in farm size and structure with rural transformation are addressed in Flagship 2, as are shifts in demand for farm labor and mechanical power as wage rates change.

Type 3: Part-time combined with household enterprise; for example, sale of services. Demand for transport, plant protection, veterinary services, mechanized field operations, and advice can be met by young men and women who have skills and enough capital to start small businesses. Research on advisory services takes place under Flagship 1, and work on facilitating expansion of mechanization under Flagship 2. Analysis under Flagship 3 assesses employment generation along the value chain, with tools developed to evaluate the age and sex composition of the work force at different nodes of the chain. Survey work conducted under Flagship 2 provides insight into the kinds of household enterprises that young people establish, and particularly how young women participate and the barriers they face.

Type 4: Off-farm wage work along the value chain. Expansion of transport and food processing generates jobs; the latter particularly creates opportunities for young women (Maertens, Minten and Swinnen 2009). Employment along the value chain is examined in Flagship 3. Employment prospects more generally and demand for labor are addressed in Flagship 2.

In selected countries, PIM will work to clarify the relevance of the four types of employment noted above, and assess which ones are more prevalent and why.

PIM's comparative advantage

PIM's comparative advantage in work on youth employment is **to address the systemic constraints to entry of young people into agriculture in Africa south of the Sahara**. This approach complements that of AFS CRPs, NGOs, and development agencies, many of which are piloting different types of interventions to create opportunities for selected individuals. PIM's systemic overview and emphasis on policy and institutional barriers also complements the work of implementation partners that are investing in projects to address youth employment, such as AfDB, AGRA, FAO, IFAD, the MasterCard Foundation, and the World Bank. PIM has established partnerships with the main agencies, and strong working relations with national counterparts through IFPRI's Country Strategy Support Programs (CSSPs) in Ethiopia, Ghana, Malawi, and Nigeria, and similarly strong partnerships of other Participating Centers.

Impact Pathways for PIM's work on youth employment

PIM's work will achieve impact through contribution to key policy processes (such as regulations affecting land markets; Sub-IDOs CC2.1.1, 1.4.5 and 3.2.1) and input into the design of national programs in areas relevant to the four types of employment presented above. In addition, the program will **draw attention to the linkages between the youth agenda and other issues that are now addressed to a large extent separately, such as the Science Agenda for Agriculture in Africa**. Faster growth of total factor productivity is essential if African agriculture is to absorb more labor without depressing returns to labor; progress in

implementation of the Science Agenda has been slow and must accelerate. The rhetoric about “making agriculture attractive to young people” is rarely paired with emphasis on investment in agricultural science. PIM’s work in Flagships 1 and 2 is designed to draw out this linkage, and bring the separate “youth” and “science” agendas together. This work will achieve impact by influencing investment in agricultural science by national governments and their development partners (all Sub-IDs under IDO CC4.1). Efforts within Flagship 3 to strengthen value chains and create opportunities for young people will also achieve impact by facilitating job creation at nodes of the value chain where young people are well represented (Sub-IDs 1.3.1, 1.3.2, 1.3.3, and 1.4.1). PIM’s research on where young people are employed at present will help elucidate some of the needed regulatory changes and facilitate their elevation and visibility in the political process (Sub-IDs 1.3.1, 1.3.2).

PIM’s capacity to address youth issues

Key staff working with PIM have expertise to frame issues relevant to the youth employment agenda, and experience to carry out the research. The PIM Director has published on the topic. CVs are shown in Section 3.8 (see in particular Flagships 2, 3, 5 and 6).

Partnerships and outreach

PIM’s Youth Strategy includes regular outreach to interact with partners and stakeholders. The PIM Director served on the planning committee for the MasterCard Foundation’s Youth Summit, held in Capetown in October 2015, which was well-attended by the press and stakeholders. The Foundation intends to make this an annual event, and PIM will continue to contribute as needed. This event is a good venue for communication and dissemination of new research [findings](#). The PIM Director also attended the workshop on youth employment held in Montpellier in September 2015 to inform design of the Phase 2 CGIAR portfolio. PIM works with AGRA, FAO (Youth Employment Program), IFAD, Cornell University, Michigan State University, Sokoine University, University of Pretoria, and the World Bank on issues of youth employment in Africa. Partnership with AfDB will be explored. Partnership with development agencies investing in youth employment projects and increased collection of age-disaggregated data will allow understanding of the extent to which young people participate in general development programs, as opposed to those designed specifically as youth employment programs. So far, more attention has been accorded the latter approach, although little evidence has been gathered to determine which approach is most effective (that is, affirmative action within general programs or purpose-designed youth programs).

Monitoring and Evaluation

Very little rigorous monitoring and evaluation of youth employment programs has been undertaken (IEG, World Bank, 2012). PIM works with development partners to address this weakness. In light of the poor knowledge base for understanding systemic constraints to youth employment, the major tasks for M&E are (a) providing reliable evidence on livelihoods (levels and sources) of young people in selected countries through survey work; (b) providing a monitoring framework for development partners and managers of national development programs to track the age distribution of beneficiaries of programs; and (c) adding to the knowledge base on effectiveness of interventions to raise youth employment.

Budget

Approximately one third of the work in Flagship 2 relates to youth employment, for a total of \$6.9M. About half of the gender analysis in Flagship 6 is age-disaggregated to capture life cycle impacts for both men and women; this represents approximately \$1.8M. For the other flagships, the level of intensity in addressing youth issues can be estimated at 10%, that is a total of \$6.5M for Flagships 1, 3, 4, and 5. The total **youth budget for 2017** is estimated at **\$15.2M**, or **16.4% of the total budget** (Table 3.5.2).

Table 3.5.2: PIM 2017 youth budget

Component of youth budget	2017 gender budget, in \$M	% of total budget
Flagship 1	2.2	10
Flagship 2	6.9	33
Flagship 3	1.7	10
Flagship 4	0.9	10
Flagship 5	1.6	10
Flagship 6	1.8	50
Management and support costs	0	0
TOTAL	15.2	16

3.6 Results Based Management

The different types of PIM results

PIM results encompass **outputs, outcomes, and contributions to Sub-IDOs, IDOs, and SLO targets.**

The CGIAR Independent Evaluation Arrangement (IEA) describes results-based management (RBM) as “a management strategy focusing on performance and achievement of outputs, outcomes, and impacts.” PIM distinguishes between “research uptake” outcomes, which correspond to the initial use of outputs by target clients such as national governments, private-sector companies, funding agencies or NGOs; and more downstream development outcomes, that is, changed behaviors of these clients resulting from the first type of outcomes. These outcomes at flagship level (see flagship sections on “Objectives and Targets”) feed into higher-level program outcomes resulting from the contribution of several flagship outcomes (Figure 1.0.3.1, Section 1.0.3). Flagship outcomes and PIM outcomes both contribute to Sub-IDOs, which in turn are expected to have downstream effects on IDOs and SLO targets as indicated in Sections 1.0.2 and 1.0.3.

Assessing PIM’s contribution to results: overview

While the collection of high-quality data on indicators is not straightforward, it is even more challenging to determine which portion of the changes in the values of indicators can be attributed to PIM’s research. In addition to tracking outcomes and impacts, a credible RBM system therefore needs to include proper research designs to be able to assess PIM’s contributions to those.

PIM’s RBM strategy consists of **(a) systematically monitoring research outputs and their initial use, and (b) selecting representative cases to conduct in-depth studies to assess longer-term development outcomes and impacts attributable to PIM.**

PIM recently published a [paper on best practice methods in impact assessment of policy-oriented research](#). Based on this paper, Table 3.6.1 shows the different stages of the policy research process and, for each, the methods used by PIM to assess outcomes and impacts from its research.

At the onset of policy research, a critical first step is to identify target outcomes and impacts and to build a clear theory of change around those. The PIM Phase 2 proposal includes a description of program- and flagship-level theories of change and indicators. Individual projects need to identify their contribution to the PIM and flagship-level indicators, and develop a plan for facilitating the uptake of research outputs. The PIM project information templates already included some questions to that effect in Phase 1; in Phase 2, links with the PIM and CGIAR results frameworks will need to be spelled out even more specifically by project teams at the planning stage.

Both PIM researchers and external evaluators play an important part in collecting and analyzing data at various stages of the research-to-outcome-to-impact pathway. PIM will make use of external experts to assess PIM’s contribution to policy outcomes and to review PIM’s overall analyses and interpretations of contributions to higher-level outcomes and impacts.

Table 3.6.1: Impact assessment methods adapted for the different stages of policy research (Source: Place and Hazell 2015)

Stage of policy-oriented research or its impact assessment	Impact assessment method
Start of policy-oriented research	<ul style="list-style-type: none"> • Determine outcomes and impacts to be targeted (as specific as possible) • Develop a theory of change • Revisit theory of change following analysis detailed below
During policy-oriented research	<ul style="list-style-type: none"> • Compile outputs relevant to specific outcome targets • Track outreach activities • Accumulate evidence for use of outputs in policy decision making (compile documents, conduct strategic interviews) • Analyze progress towards outcomes and adjust where necessary
Policy outcome	<ul style="list-style-type: none"> • Document the change that has been made (for all outcomes) • External professional assesses influence of research for selected outcomes • Select policy outcomes to be followed up by impact analyses
Post-policy outcome	<ul style="list-style-type: none"> • Identify key indicators for the targeted impacts to measure • Collect or compile baseline measures of indicators (before the policy outcome has been fully implemented) • Internal reflection on what outcomes were achieved and what lessons can be learned
Policy impact	<ul style="list-style-type: none"> • Measure quantitative impacts from the policy outcome, likely through use of modeling • Use qualitative methods to assess certain types of impacts and the contribution of policy outcome to the impacts
Post-impact	<ul style="list-style-type: none"> • Internal reflection on whether intended impacts have been obtained and what lessons can be learned • External evaluator to assess and validate the information obtained from previous steps

Monitoring research outputs and their initial use

Tracking outputs

PIM has a well-established mechanism for tracking research outputs, and will streamline the mapping of these to intended and realized outcomes by **moving to an online integrated monitoring system in Phase 2**. Experience from Phase 1 shows that principal investigators did not sufficiently track outreach activities and gather evidence of initial use of outputs by target clients. PIM started to strengthen this component in 2015-2016 through discussions with flagship and cluster leaders and update of project report templates, and will use early lessons from this approach to provide guidance to teams for mainstreaming tracking of these components into all projects in Phase 2.

The monitoring of outputs will be more systematic and at a more detailed level for Window 1-2-funded projects than for bilateral/Window 3 projects, which undergo separate monitoring via the Centers through the bilateral/Window 3 contracts.

Tracking “research uptake” (initial use) outcomes

The tracking of PIM outcomes in Phase 1 has produced variable results. In 2016 PIM introduced a **specific template for collecting information on outcomes**, and is reinforcing communication towards the teams on the importance of tracking and reporting to PIM on outcomes – including outcomes of legacy and bilaterally/Window 3-funded outputs. **Increasing the evidence base around the outcomes** is a major component of PIM’s M&E approach, and flagship teams are encouraged to do so. PIM outcomes will be featured on the PIM website and at PIM-organized impact-oriented events.

IDO and indicators

Table 3.6.2 shows **the six IDOs to which PIM contributes most significantly and directly, and the indicators that PIM plans to use to measure this contribution**. Annual measures are expected to be available for several of the indicators (those from government program reports and from FAO, OECD, and PIM annual monitoring). The indicators that rely on large household level studies can only be measured in the years those surveys are conducted, for example, every three years using LSMS data. If higher frequencies or more refined information are needed, PIM could coinvest with other CRPs to obtain such information, but only for a small number of representative countries.

Further discussions on developing indicators will continue within the CGIAR Monitoring, Evaluation and Learning Community of Practice (MEL CoP) throughout 2016-2017; some of the indicators above may be modified as a result of these discussions.

Tracking the indicators listed in Table 3.6.2 does not reflect PIM or CGIAR’s contribution to them. For example, CGIAR may have a significant positive influence even if the value of an indicator decreases – in this case the trend without CGIAR’s contribution would have been even less favorable. Likewise, a positive trend is not an indication that CGIAR has a positive influence. To understand CGIAR or PIM’s influence, it is necessary to conduct a proper impact assessment study using an appropriate counterfactual.

Table 3.6.2: Major IDOs for PIM, and their measurement

IDOs	Indicators	Method of measurement
1.1 Increased resilience of the poor to climate change and other shocks	<ul style="list-style-type: none"> • Percentage of farming households using weather-based insurance • Percentage of eligible households covered by a safety-net program • Percentage of farming households with nonagricultural income sources 	<ul style="list-style-type: none"> • Insurance: From large sample surveys (for example, LSMS-ISA) • Safety net: From country safety net program reports • Income: From large sample surveys (for example LSMS-ISA)
1.2 Enhanced smallholder market access	<ul style="list-style-type: none"> • Percentage of farming households purchasing inputs • Percentage of farming households selling outputs • Mean and median value of inputs purchased by farming households • Mean and median value of outputs sold by farming households 	<ul style="list-style-type: none"> • From large sample surveys (for example, LSMS-ISA)
1.3 Increased incomes and employment	<ul style="list-style-type: none"> • Mean and median agricultural income from sales of rural households • Mean and median total income of rural households • Percentage of men and women in rural households with off-farm employment in agriculture • Percentage of men and women in rural households with off-farm employment outside of agriculture 	<ul style="list-style-type: none"> • From large sample surveys (for example, LSMS-ISA)
1.4 Increased productivity	<ul style="list-style-type: none"> • Yield of main staple food crop (kg/ha) • Profits per hectare ((total agricultural value – purchased costs)/farmed area) 	<ul style="list-style-type: none"> • Yield: FAO statistics and available large sample surveys (for example, LSMS-ISA) • Profits per hectare: Available large sample surveys (for example, LSMS-ISA)
CC3.1 Enabling environment improved	<ul style="list-style-type: none"> • Producer Support Estimate (PSE) and Nominal Rate of Assistance (NRA) measures of policy distortions • Level of public investment in agriculture • Proportion of agricultural budget in public good generation 	<ul style="list-style-type: none"> • PSE and NRA: from OECD/FAO data • Level of public investment in agriculture: country budgets • Proportion in public good generation: calculation from budgets
CC4.1 National partners and beneficiaries enabled	<ul style="list-style-type: none"> • Number of partner research organizations who use CGIAR learning materials and approaches developed by CRPs • Number of policy decisions taken (in part) based on engagement and information dissemination by CRPs 	<ul style="list-style-type: none"> • Drawing on the PIM outcome monitoring system, reported on an annual basis

In-depth outcome and impact studies

Impact assessment faces conceptual challenges common to all of CGIAR's research: (a) the need to demonstrate a contribution to an outcome (for example, policy change, technology adoption); and (b) the need to demonstrate the more downstream outcomes and impacts arising from that initial outcome. In practice, most impact assessment studies of policy research in CGIAR focus on the first challenge, and only a minority of them include more downstream impacts of policy change. On the other hand, studies of impact of technologies most often focus on the second challenge, because demonstrating the CGIAR contribution to the development of a technology is usually a straightforward task.

PIM will continue to address the first challenge, that is, **use evidence to document PIM's influence on policy (and other outcomes)** because that is a necessary first step. However, an increased number of other PIM studies will take up the second challenge, that is, **assess the qualitative and quantitative impacts of policy outcomes on SLO targets and other important variables.**

Studies of PIM's contribution to policy outcomes ideally take place soon after policy outcomes have occurred, so that testimonials may be obtained and key actors may be interviewed while the policy process is fresh on their minds. Thus, **assessment of policy outcomes and assessment of policy impacts ideally take place at different points in time**, which means that synthesis work will be needed later to pull together the two levels of analysis. Cases for policy impact assessment will be selected when policy outcomes are validated and before impacts are realized, so that proper baselines can be measured and changes over time can be observed.

Both outcome and impact studies require that **counterfactuals** be identified. In the case of outcome studies, the counterfactual is the absence of the research outputs produced by PIM. External assessments have often found that the appropriate counterfactual is that the policy outcome would have happened but much later than in the presence of the research. In terms of impacts, the most frequently observed counterfactual is the alternative policy that the policy makers would have established (a continuation of the current one, or a different new one, for instance). Models (the same models used by researchers to inform policy choices) are often used for these assessments.

Even if a study demonstrates PIM's contribution to a policy outcome, **PIM needs to be mindful of policy makers' sensitivity in claiming a contribution to outcomes.** Some governments may not want to acknowledge the contributions of "outsiders", and such claims from PIM could jeopardize future collaborations. However, as much as possible governments will be encouraged to provide some acknowledgement of PIM's work. In CGIAR countries of collaboration, it may be useful to negotiate with governments at CGIAR level so that future commitments of CGIAR in these countries are predicated in part on governments' willingness to provide an assessment of the contribution of CGIAR.

External evaluations

External evaluations will be used for the following purposes:

- **To assess the degree to which PIM's research contributes to policy change and other first user outcomes:** As discussed above, this is a critical first step in evaluating PIM's impact, and there is no point in assessing higher-level impacts if PIM's contribution to changed behaviors of policy makers and other direct users of PIM outputs has not been demonstrated. Past external evaluations of IFPRI's and PIM's work have shown that contribution or attribution of policy

research is not easily reflected in the available documentation because policy makers rarely cite the research findings that have helped them make decisions. In such cases, investigations from independent external evaluators are essential for sorting out the contributions of various inputs into policy making. IFPRI and PIM have developed a roster of skilled evaluation professionals, who rely to a large extent on interview techniques. This type of evaluation will cover each of the PIM flagships, and include capacity development.

- **To validate PIM’s impact assessment design strategy and assess the degree to which PIM had achieved downstream outcomes and impacts:** The quantitative assessment of impacts requires a significant level of training, especially in the area of policy, where sectoral or economywide models may be needed to develop counterfactuals. External evaluators should partner with PIM researchers to ensure that appropriate designs, assumptions, and methods are used, and to get inputs on overall interpretations. These types of external evaluations may be flagship specific, tracing through the effects of flagship-specific outcomes (for example, the expanded use of value chain solutions). They may also cut across flagships, in cases where more than one flagship helped to achieve outcomes or impacts, which may be particularly relevant in CGIAR countries of collaboration.

Selection of topics for such evaluations will cover different elements of the PIM portfolio, with some case studies being selected randomly in order to represent a particular topical area. Recognizing that several thematic areas, including high-value agriculture, capacity development, social protection, science policy, and country programs, have been evaluated by PIM and IFPRI at the end of Phase 1 and that the evaluation of the PIM program devoted particular attention to the models for foresight, international trade, and national policy analysis, **candidates for early evaluation in Phase 2 are research on insurance products and natural resource governance.**

- **To assess the degree to which PIM is performing its integrative role:** As one of the Integrating CRPs, PIM is expected to perform integrative functions. A potential role for evaluators is to assist PIM in developing a set of indicators for this integrative role. For instance, some of these indicators could quantify the performance of the various PIM-led communities of practice. Similarly, PIM will benefit from an early independent assessment of the performance of the CGIAR Collaborative Platform for Gender Research. An assessment of the role of PIM in the national policy coordination in selected CGIAR countries of collaboration would lend itself well to an external evaluation. All ICRPs have confirmed their intent to conduct these types of evaluations jointly.
- **To assess the performance of PIM’s governance and management functions:** It is planned that the new PIM governance structure will be evaluated after two to three years of operations. The performance of the management team, including use of the new M&E online tool (see below), will also benefit from a review. Other potential areas for external review are PIM’s communications and partnerships.

Monitoring of risks and assumptions

Because risks vary according to policy context, **the task of monitoring risks and assumptions mainly lies with the principal investigators.** To keep reporting requirements at a manageable level, principal investigators are not formally required to report on risks at the activity level; however, as they report on progress towards outcomes they will be reminded to consider the assumptions that they had made

(explicitly or implicitly), and whether these were validated or not. Annual flagship reports (see below) will summarize these reflections at the flagship level. At program level, an analysis will be made across flagships for PIM's countries of focus, reflecting the importance of these to the PIM impact pathways and contribution to SLO targets.

Approach to learning

Opportunities for learning and adjustment are present at each stage of the research process (see Table 3.6.1).

PIM's approach to learning includes **annually producing the following documents** in order to review progress towards outcomes in a systematic way:

- Cluster- and flagship-level assessments of progress towards outcomes
- Impact assessments and external evaluations conducted during the year
- Overall summary and assessment by PIM M&E unit and PIM Director

The following activities are planned to **disseminate these outputs to PIM researchers and partners**:

- Share learning information through blog posts on the PIM website
- Create space for learning discussion at PIM extended team meetings
- Hold panel discussions with external and PIM experts involved in impact assessments/evaluations
- Organize training sessions on planning for outcomes

In addition, PIM will ask cluster and flagship leaders to document changes to work plans as a result of this learning process. The corresponding documents will be reviewed by the Program Management Unit (PMU) prior to submission of the annual CRP Plan of Work and Budget. **Changes to activity-level work plans based on learning** will also be encouraged. **Reflection on the effectiveness of outreach outputs** will form a critical element of the PIM learning.

Performance management

Following a recommendation from the evaluators of PIM, PIM's approach towards performance-based planning and budgeting will be formalized in Phase 2. PIM will use a program planning and monitoring tool in common with the other Integrating CRPs (building upon the current CCAFS tool, see below), which will facilitate monitoring and assessment of performance by flagship, activity, and Center. The level of funding will be based on a number of criteria, including quality of science (e.g. number of ISI publications), timing and cost of outputs, quality of partnerships, contribution to PIM outcomes and impacts, mobilization of bilateral funds, relevance to PIM's target countries and regions, contribution to PIM's integrating role, and quality of reporting. **Teams that show strong contribution to science and outcomes will be financially rewarded, and penalties will be established in situations of significant under-delivery of outputs, lack of attention to outcomes, or both.** The details of how PIM will measure performance and use the results will be finalized following the constitution of PIM's new Management committee and Independent Steering Committee.

Organization of RBM in PIM

The functions of the **PIM M&E unit** include oversight of planning and reporting systems; support to flagship, cluster, and activity leaders for development of theories of change; coordination of impact

assessments and external evaluations; and participation in the CGIAR MEL CoP to develop common indicators and methods. The PIM M&E unit is hosted in the PMU.

Flagship and cluster leaders play an important role in ensuring that activity work plans include appropriate outreach activities to facilitate uptake of outputs, reviewing and assessing progress towards outcomes at the activity level (in relation with activity leaders), providing information on outputs and outcomes (especially initial, qualitative outcomes) at the flagship/cluster level, and contributing to design of downstream studies of outcomes and impacts.

A tool to operationalize monitoring and learning in PIM: MARLO (Managing Research for Learning and Outcomes)

At a meeting in February 2016, **the four Integrating CRPs, PIM, A4NH, CCAFS, and WLE, agreed on the fundamental characteristics of a single, integrated online M&E platform.** The advantages of cross-CRP collaboration on this topic include reduced transaction and management costs, standardization of nomenclature and frameworks, and, in the longer term, aggregation/integration of data across the participating CRPs. This tool is expected to benefit both the CRPs involved and CGIAR as a whole in streamlining the planning and reporting processes and production of key operational documents (POWB, annual reports), while also facilitating the monitoring of progress towards the SRF SLOs. The system will be interoperable, enabling data to be accessible and usable by other CRPs and the System Office.

The online M&E platform covers the CRP program management cycles, including pre-planning and planning, monitoring, reporting, and synthesis. The platform is structured around the theory of change at programmatic, flagship/cluster, and project levels, enabling the inclusion and review of key results and assumptions on a periodic basis. The platform, called Managing Research for Learning and Outcomes (MARLO), is currently under development based on the existing CCAFS planning and reporting system. The aim is to have the platform ready to meet the needs of the four CRPs for the 2017 planning phase.

Resources for RBM

The **PIM M&E budget for 2017** is estimated at **\$5.1M.**

For more information and a disaggregated view of these costs, see Table 1.1.6.1: M&E and impact assessment budget components, Section 1.1.6, CRP budget narrative.

3.7 Linkages with other CRPs and Site Integration

Table 1: Overview of Inter-CRP Collaboration (“Provide” and “Receive”)

CRP/PIM Flagship	CRP: PIM					
	Flagship 1: Technological Innovation and Sustainable Intensification	Flagship 2: Economywide Factors Affecting Agricultural Growth and Rural Transformation	Flagship 3: Inclusive and Efficient Value Chains	Flagship 4: Social Protection for Agriculture and Resilience	Flagship 5: Governance of Natural Resources	Flagship 6: Cross-cutting Gender Research and Coordination
WHEAT	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of global, multi-commodity analysis to support specific analyses of interest to (and led by) WHEAT, including research on incorporation of biotic stresses into a wheat bioeconomic modelling framework • Actionable policy recommendations on science, technology, and innovation policy 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of wheat technology and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Common methodology used across CRPs including WHEAT on measuring losses along the wheat value chain • Customization of PIM value chain tools to CRP’s specific needs, particularly tools for upgrading value chains for wheat and assessing impacts of chain interventions • Assessment of demand for feedstock 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Joint research on insurance products and technology adoption in India <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Joint research on insurance products and technology adoption in India 	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	<p>reforms in support of improved wheat seed systems in selected countries</p> <ul style="list-style-type: none"> • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on wheat agrifood systems, including results of research on biotic stresses in wheat, to support continued improvement of foresight modeling tools and global analyses • Opportunities for joint work on actionable, policy-relevant research related to CRP-supported technologies and practices 		<ul style="list-style-type: none"> • Tools for informing scaling up <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Feedback from WHEAT team working on measuring losses along the wheat value chain regarding suitability of methods, as well as findings about magnitude and locus of losses • Results from application of value chain tools for learning of lessons • Opportunities for collaborative testing of scaling tools 			
MAIZE	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Analysis of the public services needed to promote 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Common methodology used across CRPs 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Joint research on insurance products 	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and

	<p>global, multi-commodity analyses to support specific analyses of interest to (and led by) MAIZE, including research on incorporation of biotic stresses into a maize bioeconomic modelling framework</p> <ul style="list-style-type: none"> • Actionable policy recommendations on science, technology, and innovation policy reforms in support of improved maize seed systems in selected countries • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on maize agrifood systems, including results of research on biotic stresses in 	<p>uptake of maize varieties</p> <ul style="list-style-type: none"> • Country-level tools and analysis of maize technology and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Joint research and guidance on key maize varieties • Suggested topics for political economy analysis 	<p>including MAIZE on measuring losses along the maize value chain</p> <ul style="list-style-type: none"> • Customization of PIM value chain tools to CRP's specific needs, particularly tools for upgrading value chains for maize and assessing impacts of interventions • Assessment of demand for maize as feed • Tools for informing scaling up <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Feedback on use of methods to measure loss and results on magnitude and locus of losses in maize • Results from application of value chain tools for learning of lessons • Opportunities for collaborative 	<p>and technology adoption in India</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Joint research on insurance products and technology adoption in India 		<p>methods, shared learning across CRPs</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools
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	<p>maize, to support continued improvement of foresight modeling tools and global analyses</p> <ul style="list-style-type: none"> • Opportunities for joint work on policy reforms to accelerate improved maize adoption and support maize seed industry development in selected countries • Co-development of methods for technology adoption and impact 		<p>testing of scaling tools</p>			
RICE	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • An integrated modeling platform, combining ORYZA2000 with an econometric model, is being developed by PIM and RICE to measure in a rigorous manner the expected benefits of 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of rice technology and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Methods to measure losses along the rice value chain, with emphasis on drying, storage, and milling • Tools to diagnose distortions and weakness in rice value chains (including finance) 	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs • Collaboration with PIM and the gender community of practice on gender equity, inclusion, and growth. Joint

	<p>potential rice technologies</p> <ul style="list-style-type: none"> • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • As noted above, RICE will invest in the further development of ORYZA2000, which is used by PIM in this modeling exercise • Expert inputs on rice agrifood systems, including results of ex ante analyses of C4 and submergence-tolerant rice technologies, to support continued improvement of foresight modeling tools and global analyses 		<p>and assess impact of interventions</p> <ul style="list-style-type: none"> • Interventions such as functional and channel upgrading will be examined • Tools for informing scaling up • Innovations on contract farming and farmer groups to aggregate production and standards <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Feedback on the applicability of the methods for measuring loss to rice, and information on the magnitude and locus of loss along the chain • Results from application of value chain tools for learning of lessons 			<p>work plans will be developed to test scaling-up approaches in joint studies on women, youth, and technology adoption (Flagship 1 of RICE)</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools
RTB	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of RTB technology and 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Common methodology used across CRPs 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Analysis of how social protection strategies can 	<p><i>CRP provides: no specific agreement</i></p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and

	<p>global, multi-commodity analyses to support specific analyses of interest to (and led by) RTB, including research on cassava value chains and on pests and diseases</p> <ul style="list-style-type: none"> Actionable policy recommendations on seed system reforms in support of clonal and vegetatively propagated crops Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> Expert inputs on RTB agrifood systems, including results of research on cassava value chains and on pests and diseases, to support continued improvement of foresight modeling 	<p>policy impacts on growth, poverty and employment in selected countries</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> Suggested topics for political economy analysis 	<p>including RTB on measuring losses along the potato, banana, and sweet potato value chains (Cluster 4.1 of RTB)</p> <ul style="list-style-type: none"> Joint investment in gender- and youth-responsive VC tools (Cluster 5.3 of RTB) Tools for informing scaling up (Cluster 5.4 of RTB) Customization of PIM value chain tools to CRP's specific needs, particularly tools for upgrading root, tuber and banana value chains and assessing impacts of chain interventions <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> Joint investment in postharvest technologies and management options for RTB postharvest loss reduction and value-addition to 	<p>complement agricultural interventions for poor Andean potato farmers</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> Case studies on livelihoods and nutrition among poor Andean potato farmers 	<p><i>CRP receives:</i> no specific agreement</p>	<p>methods, shared learning across CRPs</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> Shared empirical results, shared effort to develop tools
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	<p>tools and global analyses</p> <ul style="list-style-type: none"> • Opportunities to collaborate on empirical research on seed systems for clonally and vegetatively propagated crops 		<p>waste products (Cluster 4.1 of RTB)</p> <ul style="list-style-type: none"> • Joint investment in gender- and youth-responsive VC tools (Cluster 5.3 of RTB) • Opportunities for collaborative testing of scaling tools (Cluster 5.4 of RTB) 			
DCL	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of global, multi-commodity analyses to support specific analyses of interest to (and led by) DCL, including research on climate change impacts and adaptation technologies for pearl millet, groundnut and chickpea • Actionable policy recommendations on DCL seed system reforms and innovate extension methods 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of DCL technology and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Common methodology used across CRPs including dryland cereals and legumes on measuring postharvest losses • Adaptation of PIM VC tools to DCL value chain contexts (Clusters 2.1 and 2.2 of DCL) • Analysis of governance and organizational arrangements to support scaling of successful interventions (Cluster 2.3 of DCL) 	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools, methods, and synthesis of results of studies of tenure and governance of shared landscapes <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Overview on the enabling environment in dryland cases affecting the adoption of innovative NRM practices • Assessments on interactions between sectoral governance mechanisms in the drylands context 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	<ul style="list-style-type: none"> • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on DCL agrifood systems, including results of research on climate change impacts and adaptation technologies for pearl millet, groundnut and chickpea, to support continued improvement of foresight modeling tools and global analyses • Joint research opportunities on legume and dryland cereal seed systems technologies, and ICT-enabled extension approaches 		<p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Feedback on suitability of methods • Results on magnitude and locus of losses in dryland cereals and legumes • Analysis of value chains in dryland cereals and legumes to identify frequently recurring weak nodes • Characterizations of successful interventions for joint analysis of potential for scaling up 			
FTA	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of FTA 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Joint investment on tools for 	<p><i>CRP provides:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools, methods, and synthesis of 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of

	<p>and results of global, multi-commodity analyses to support specific analyses of interest to (and led by) FTA, including research on climate-smart agriculture and on links between trade, land use change, and GHG emissions</p> <ul style="list-style-type: none"> • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on FTA agrifood systems, including results of research on climate-smart agriculture and on links between trade, land use change, and GHG emissions, to support continued improvement of foresight modeling 	<p>investment and policy impacts on growth, poverty and employment in selected countries</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p>diagnoses, intervention testing and scaling mechanisms for forest and tree product value chains</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Joint investment on empirical application of tools and sharing of results for forest and tree products 	<p><i>CRP receives:</i> no specific agreement</p>	<p>results of studies of resource tenure, governance of shared landscapes and maintenance of ecosystem services</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Tools, methods, and results of studies, including performance of new investment arrangements involving common pool resources from FTA's work on sustainable value chains, finance and investment 	<p>gender tools and methods, shared learning across CRPs</p> <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools
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	tools and global analyses					
Livestock	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of global, multi-commodity analyses to support specific analyses of interest to (and led by) Livestock, including research on impacts and technologies related to animal productivity, livestock value chains, and climate change, as well as selected regional analyses in Africa, Asia and Central America • Analysis on science policies to advance vaccines, improved fodder, and other technologies and practices for livestock health and management 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level tools and analysis of livestock sector investment and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Adjusted methodology for measuring postharvest losses suitable for dairy and livestock products • Tools and capacity building for prioritization of value chain interventions, and impact assessment of interventions • Tools for informing scaling up of organizational innovations • Joint investment in East Africa value chain hub <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared results from application of value chain tools • Opportunities for collaborative testing of scaling tools 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Evidence on impact of social protection on livestock holdings during drought <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Case studies on resilient livelihoods for livestock holders 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools, methods, and studies for land governance projects in Tanzania, Kenya, Ethiopia • Input to civil society independent monitoring and dialogue on good governance and inclusive agricultural investment in Tanzania <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Entry points to engage with government and other stakeholders, and tools, methods, and results of studies, technical advice, lessons related to governance of shared landscapes including rangelands and 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	<ul style="list-style-type: none"> • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on livestock agrifood systems, including results of research on impacts and technologies related to animal productivity, livestock value chains, and climate change, as well as selected regional analyses in Africa, Asia and Central America, to support continued improvement of foresight modeling tools and global analyses • Opportunities to work jointly on livestock health and management issues 		<ul style="list-style-type: none"> • Joint investment in East Africa value chain hub 		<p>land-based investments – through Sustainable Rangeland Management Project in Tanzania, and the ILC-Rangelands Initiative projects in Kenya, Ethiopia</p>	
FISH	<i>CRP provides:</i>	<i>CRP provides:</i>	<i>CRP provides:</i>	<i>CRP provides: no specific agreement</i>	<i>CRP provides:</i>	<i>CRP provides:</i>

	<ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of global, multi-commodity analyses to support specific analyses of interest to (and led by) FISH, including research on future trends in fish supply and demand in selected countries in Africa and Asia • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on fish agrifood systems, including results of research on future trends in fish demand and supply in Africa and Asia, to support continued improvement of foresight modeling 	<ul style="list-style-type: none"> • Country-level tools and analysis of fish sector investment and policy impacts on growth, poverty and employment in selected countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<ul style="list-style-type: none"> • Common methodology used across CRPs including FISH on measuring losses along the value chain <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Joint investment on measuring losses along the fish value chain 	<p><i>CRP receives:</i> no specific agreement</p>	<ul style="list-style-type: none"> • Tools, methods, and results of studies of resource tenure and governance of shared land and waterscapes <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Tools and methods for multistakeholder processes and conflict management • Results of action research on governance of shared landscapes 	<ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools
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	tools and global analyses					
CCAFS	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Results of global, multi-commodity analysis to support specific analyses of interest to (and led by) CCAFS, including research on adoption of climate-smart agriculture technologies and their impact on greenhouse gas emissions • Analysis of policies to promote the adoption of climate-smart technologies • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on scenarios of climate change and results of research on adoption of climate 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level analysis for countries of interest, including data and tools for multi-sector analysis of climate risks for agricultural growth and rural poverty in selected countries • Expenditure analysis of national climate readiness plans <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Analysis of vulnerability to climate change along different nodes of value chains and implications for other nodes • Interventions to manage risks along the chains <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Case studies of interventions to manage climate risks within value chains for collaborative assessment of potential scaling up 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Evidence on how social protection mitigates effects of shocks due to climate change • Joint investment in developing viable weather insurance products and systems with PIM focusing on insurance product development • Learning platform on weather insurance <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Evidence of climate change adaptation strategies in agriculture • Joint investment in developing viable weather insurance products and systems, with CCAFS providing guidance on developing 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools, methods, and results of studies of governance of shared landscapes • Tenure arrangements for REDD+ and climate-smart agriculture • Collective action for climate-smart landscapes <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Tools, methods, and results of action research in climate-smart landscapes and multistakeholder platforms, e.g. in West Africa 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	smart agriculture technologies and their impact on greenhouse gas emissions			measures of climate change effects <ul style="list-style-type: none"> • Learning platform on weather insurance 		
A4NH	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Results of global, multi-commodity analysis to support specific analyses of interest to (and led by) A4NH • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Diet quality information linked to food production outcomes and food systems futures / tradeoffs • Scenario analysis and modeling of food systems linked to food innovations and scaling up 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Country-level analysis of urbanization and dietary change for countries of interest • Work on mainstreaming biofortification in national policy <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Suggested topics for political economy analysis • Case studies of application of methods and tools for policy processes in A4NH • Methods for engaging policy actors (such as Stories of Change) 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Joint investment in measurement of losses along value chains of selected major nutritious foods • Results from synthesis of research on value chains in key countries <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Information on food safety as a factor creating losses along the value chains • Joint work to analyze potential interventions • Shared results from food safety interventions in value chains 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Evaluation studies on interaction between social protection, agriculture and nutrition <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Evidence on nutrition and diet response to changes in agriculture 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Approaches to managing landscapes with shared use of resources <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Information on health implications of alternative uses of resources (such as increased incidence of disease or changed disease profiles) 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, particularly on gender and nutrition • Shared effort to develop tools

	<ul style="list-style-type: none"> • Methods for multi-chain food systems research 					
WLE	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Foresight modeling tools, expertise, and results of global, multi-commodity analyses (including results from the IMPACT water module) to support specific analyses of interest to (and led by) WLE, including research on groundwater use globally and in selected regions • Methods to support work on technology adoption and impact <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Expert inputs on water and land use, including results of research on groundwater use globally and in selected regions, to 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools and data enabling collaborative research on the economics of rural-urban linkages and natural resource constraints in countries of interest <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Data and analysis on sectoral and spatial water use and rural-urban linkages 	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Tools and methods for study of land and water tenure community-level governance of shared landscapes and institutional arrangements for ecosystem services <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Tools (e.g. games for collective action), methods • Results of studies of benefit sharing and contribution to ecosystem service provision under different tenure systems • Action research to manage shared water resources 	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	support continued improvement of foresight modeling tools and global analyses					
Genebank Platform	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Economic analysis of global, regional, and national policy issues related to genetic resources policy • Foresight modeling tools, expertise, and results of global, multi-commodity analysis to support specific analyses of interest to Genebanks, including research on the impact of alternative policies governing transfer of genetic materials <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Opportunities to access analytical insights, information, and data from platform partners and stakeholders 	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i></p> <ul style="list-style-type: none"> • Inventory and advancement of gender tools and methods, shared learning across CRPs <p><i>CRP receives:</i></p> <ul style="list-style-type: none"> • Shared empirical results, shared effort to develop tools

	<ul style="list-style-type: none"> • Expert input on policy scenarios and their potential implications for agricultural research and productivity 					
Genetic Gains Platform	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>
Big Data platform	<p><i>CRP provides:</i> geospatial data from Harvest Choice datasets, data from IMPACT3 update</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> No specific agreement</p> <p><i>CRP receives:</i> No specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>	<p><i>CRP provides:</i> no specific agreement</p> <p><i>CRP receives:</i> no specific agreement</p>

Table 2a: Partnerships with other CRPs (activities, mode, geographies and outcomes sought)**Submitting CRP: PIM (major partnerships only)**

Partner CRP	ACTIVITY [COUNTRY(IES) IN WHICH THIS TAKES PLACE]	PIM ROLE	COLLABORATING CRP ROLE	COLLABORATION MODE	OUTPUT; ADDED VALUE; TARGET COUNTRIES
All CRPs	Foresight modeling (global)	Development and maintenance of core modeling suite, training, convening community of practice, coordination and synthesis of cross-cutting foresight studies	Participate in community of practice, provide biophysical and other attributes for general modeling suite, run scenarios of particular interest to CRP, share results	Co-investment	<ul style="list-style-type: none"> • Scenarios with different assumptions about technologies • Value for decisions on investment in research, value for regional and national planning for climate-preparedness • Global, regional, and national
All AFS CRPs, CCAFS	Strengthening value chains	Developing research tools and methods, convening community of practice, prioritization of value chains and policy constraints, coordination and synthesis of cross-cutting value chain studies, maintaining online platform for dissemination (tools4valuechains.org)	Developing tools and methods, applying to value chains of interest to CRP, sharing lessons with community of practice, disseminating PIM and CRP results to stakeholders in relevant value chains	Co-investment, parallel investment	<ul style="list-style-type: none"> • More systematic understanding of bottlenecks in value chains and workable interventions • Value: cross-CRP learning • Focus in CGIAR countries of collaboration and in Latin America
All AFS CRPs, CCAFS	Measuring and reducing postharvest losses	Developing methodologies for measuring losses and for testing interventions, coordinating joint studies, convening to discuss results and disseminate to global stakeholders	Co-development of methodology, application of methodology in value chains in AFS CRPs, sharing of findings to the research, development and policy communities	Parallel investment	<ul style="list-style-type: none"> • More rigorous understanding of cost of PHL, design of cost-effective interventions • Value: cross-CRP learning, integrated view • Global, regional, national, with focus on CGIAR countries of collaboration

All CRPs	CGIAR Collaborative Platform for Gender Research	Managing Platform, identifying priority gender research for CGIAR	Participating in collaboration through the platform, applying and disseminating good gender research practices	PIM funds Platform, all CRPs fund gender research	<ul style="list-style-type: none"> • Better coordination of gender research, strategic prioritization • Value: strategic prioritization, cross-CRP learning • Global, regional, national, and local
CCAFS, DCL. FISH, FTA, LIVESTOCK, WLE	Resource tenure studies; Managing shared landscapes	<ul style="list-style-type: none"> • Identifying ways to strengthen tenure and governance institutions that affect uptake of innovations developed by other CRPs • Convening community of practice across resources, e.g. through workshops to share approaches and coordinate analysis of tenure reform and governance across rangeland, forest, aquatic, and agrarian resources 	Participating in workshops and collaboration, jointly developing new methods, implementing empirical studies and sharing findings	Co-investment on governance-related research to enable comparative analyses across resource systems and countries, building on CAPRI community of practice	<ul style="list-style-type: none"> • Shared body of work covering a range of resources within shared landscapes • Value: Cross-CRP learning, cross-resource learning • Mostly national and local e.g. in Ethiopia, Tanzania, India, Bangladesh, Vietnam; African regional through Land Policy Initiative; Global through International Land Coalition
AFS CRPs, CCAFS	Methods and approaches to assessing diffusion, adoption, and impact of technology	<ul style="list-style-type: none"> • Convening group to improve and share methodologies, coordinated studies, present findings • Analyses of the policy constraints to technology adoption 	Participation in group, development and implementation of methods, agreeing on agenda of shared work.	Parallel investment	<ul style="list-style-type: none"> • Greater coherence and strategic prioritization in work on adoption; higher quality research results • Value: strategic prioritization, cross-CRP learning • Methods are global; empirical work focused in CGIAR countries of collaboration

AFS CRPs (initial emphasis on RTB and DCL crops)	Seed system regulations and delivery	Addressing cross-cutting regulatory issues inhibiting seed sector, testing novel approaches to seed delivery with cross-commodity relevance	Addressing crop specific seed regulation and delivery constraints	Initially, parallel investment Co-investment with RTB and DCL	<ul style="list-style-type: none"> • Reduced systemic barriers to seed production and delivery systems that foster quality increases and are sustainable • Value: new approaches to chronic problem; cross-CRP learning • Focus on Africa
A4NH	Social protection and nutrition	Designing studies of social protection programs with input from A4NH on relevant nutritional interventions and indicators to test	Participating in studies to enrich coverage of nutrition	Parallel investment	<ul style="list-style-type: none"> • More explicit coverage of nutrition in social protection • Value: empirical attention to commonly held assumption will allow confirmation or refutation • National and local
CCAFS, MAIZE, WHEAT	Weather-based insurance	Designing shared work program, comparing methods, developing insurance products, sharing results	Designing shared work program, comparing methods, sharing results	Parallel investment	<ul style="list-style-type: none"> • Progress in understanding low uptake of insurance by smallholders • Value: cross-CRP learning • National and local

Template 2b: Plans for site integration in CGIAR target countries

Target country (++ and + countries relevant to your CRP)	Define steps taken so far (March 2016) to establish national level engagement with other CRPs towards site integration	Define plan and schedule through which your CRP will provide relevant elements for development of CGIAR site integration in this country
Bangladesh	For details of site integration, see http://gcard3.cgiar.org/national-consultations/bangladesh/ PIM was represented in the national consultation by Akhtar Ahmed, Chief of Party of the IFPRI Country Strategy Support Program (based in Bangladesh). PIM also contributed to the completion of the site integration document submitted in April.	PIM participates in the CGIAR Advisory Committee through Akhtar Ahmed, Chief of Party of the IFPRI Country Strategy Support Program. As noted in the site integration document, IFPRI has strength in policy analysis and dialogue, agricultural extension, and social protection work. IFPRI often assembles CGIAR partners for policy engagements or forums.
Ethiopia	For details of site integration, see http://gcard3.cgiar.org/ethiopia/ A senior staff member in the PIM Program Management Unit attended the national consultation in Addis Ababa, met with the IFPRI Country Strategy Support Program leader (who also attended the consultation) to discuss the opportunities and challenges in that program and PIM's contribution to streamlining policy engagement in the country, and visited Irish Aid to discuss areas of mutual interest in supporting Ethiopia's agricultural research and development objectives. PIM also contributed to the completion of the site integration document submitted in April.	PIM participates in CGIAR dialogues with the government and development community to define priority areas of engagement. As agreed with other CGIAR partners, PIM will contribute through participation in the Rural Economic Development for Food Security Working Group (RED-FS), that includes the government, major development partners, and national research institutions. CGIAR agreed to explore ways of formally joining this group. In addition, PIM will also engage in discussions with key government and development stakeholders to respond to policy priorities in Ethiopia. The IFPRI Country Strategy Support Program has long-standing relationships with Ethiopian partners that will continue to help in defining and implementing PIM research. Through participation in the CGIAR collaboration, PIM will lead policy engagement of CGIAR in the country (identifying policy research priorities for CGIAR, sharing policy research methods and results).

<p>Ghana</p>	<p>For details of site integration, see http://gcard3.cgiar.org/ghana/ PIM was represented in the national consultation by an IFPRI senior staff based in Ghana, who also leads research under the Country Strategy and Support Program. A visit by a PIM-PMU senior staff member took place in mid-April to discuss aspects of site integration with the IFPRI Country Strategy and Support team and other CRP representatives. PIM also contributed to the site integration document.</p>	<p>PIM participates in CGIAR dialogues with the government and development community to define priority areas of engagement. The Agricultural Sector Working Group (ASWG) is an existing a platform for dialogue between development partners and the government, to which links by the CGIAR group as a whole should be explored. PIM also engages in discussions with key government and other stakeholders to develop detailed policy research activities with partners in Ghana. The IFPRI Country Strategy Support Program has long-standing relationships with Ghanaian partners, that will continue to help in defining and implementing PIM research. Through participation in the CGIAR collaboration, PIM will lead policy engagement of CGIAR in the country (identifying policy research priorities for CGIAR, sharing policy research methods and results).</p>
<p>India</p>	<p>For details of site integration, see http://gcard3.cgiar.org/india/ PIM was represented in the national consultation by the Head of IFPRI’s South Asia regional office. A senior staff member in the PIM Program Management Unit co-convoked a meeting with 20 Indian government, development and research representatives, and other CGIAR scientists in May 2015 to discuss national priorities in the area of policies, institutions, and markets in agriculture for Phase 2.</p>	<p>Many Centers contributing to PIM have presence and engagement in India. PIM is fully engaged on topics of foresight analysis, seed systems, value chain analysis, market distortions, natural resource management, and gender analysis, and will contribute in these areas to collaborative efforts. Collaboration and coordination at the sub-national level will be particularly important.</p>
<p>Malawi</p>	<p>For details of site integration, see http://gcard3.cgiar.org/malawi/ PIM was represented in the national consultation by an IFPRI scientist based in Malawi. PIM also contributed to the site integration document.</p>	<p>PIM is well engaged in Malawi on topics related to input subsidies, structural transformation, youth employment, value chain analysis, agricultural extension, and natural resource management. PIM’s presence in country through an IFPRI scientist facilitates communication and coordination with partners within CGIAR and in the development community.</p>
<p>Nicaragua</p>	<p>For details of site integration, see http://gcard3.cgiar.org/nicaragua/ PIM was represented in the national consultation by a CIAT scientist working with PIM and based in Colombia.</p>	<p>PIM does not have a major engagement in Nicaragua. PIM can contribute work on value chains to the more general commitment to CGIAR collaboration in the country.</p>

<p>Nigeria</p>	<p>For details of site integration, see http://gcard3.cgiar.org/nigeria/ A senior staff member in the PIM Program Management Unit attended the national consultation, and met with staff of the IFPRI Country Strategy and Support Program to discuss the opportunities and challenges in that program, and PIM’s coordination with the CSSP as a mechanism of country engagement. PIM also contributed to the site integration document submitted in April.</p>	<p>PIM participates in CGIAR dialogues with the government and development community to define priority areas of engagement. The Agricultural Sector Working Group (ASWG) is an existing platform for dialogue between development partners and the government. PIM supports the CGIAR agreement to explore ways of formally linking to it and other potential coordination arrangements. PIM also engages in discussions with key government and other stakeholders to develop detailed policy research activities with partners in Nigeria. The IFPRI CSSP has long-standing relationships with Nigerian partners, that will continue to help in defining and implementing PIM research, and can assist in providing entry in the programs to other CRPs with policy dimensions. Through participation in the CGIAR collaboration, PIM will lead policy engagement of CGIAR in the country (identifying policy research priorities for CGIAR, sharing policy research methods and results).</p>
<p>Tanzania</p>	<p>For details of site integration, see http://gcard3.cgiar.org/tanzania/ A senior staff member in the PIM Program Management Unit attended the national consultation and had follow up discussions with the convening center on the process moving forward. He also visited Irish Aid to discuss areas of mutual interest in supporting Tanzania’s agricultural research and development objectives. PIM managers and senior researchers met with the Lead Agricultural Specialist of the World Bank for Tanzania to discuss areas of mutual interest in supporting Tanzania’s agricultural research and development objectives. PIM also contributed to the site integration document submitted in April.</p>	<p>PIM participates in CGIAR dialogues with the government and development community to define priority areas of engagement. The Development Partner Agriculture Working Group (AWG) is an existing mechanism of coordination that meets regularly with the government. CGIAR agreed to explore ways of formally linking to such mechanisms, and PIM supports this approach. PIM also engages with key government and other stakeholders to develop detailed policy research activities with partners in Tanzania. Through participation in the CGIAR collaboration, PIM will lead policy engagement of CGIAR in the country (identifying policy research priorities for CGIAR, sharing policy research methods and results).</p>
<p>Uganda</p>	<p>For details of site integration, see http://gcard3.cgiar.org/uganda/ PIM contributed to the site integration document.</p>	<p>PIM has engagement on issues of technology adoption and natural resource management. PIM will engage more broadly on policy issues as the demand from the Ugandan side to the CGIAR group as a whole is clarified.</p>

Vietnam	For details of site integration, see http://gcard3.cgiar.org/vietnam/ PIM was represented in the national consultation by an ICRAF scientist working with PIM and based in Vietnam. PIM also contributed to the site integration document.	PIM has a limited presence in Vietnam, focused primarily on natural resource management. Additional engagement will be considered as needed through the CGIAR collaboration and as resources allow.
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3.8 Staffing of Management Team and Flagship Projects

Program Management Unit

Name	Organization	% time
Karen BROOKS	IFPRI	100
Frank PLACE	IFPRI	100
Pascale SABBAGH	IFPRI	100

Flagship 1 – Technological Innovation and Sustainable Intensification

Name	Organization	% time
Kristin DAVIS	IFPRI	50%
Steven FRANZEL	ICRAF	50%
Guy HAREAU	CIP	50%
Mywish MAREZIA	Michigan State University	10%
Siwa MSANGI	IFPRI	75%
Steven PRAGER	CIAT	25%
Mark ROSEGRANT (flagship leader)	IFPRI	75%
David SPIELMAN	IFPRI	75%
Hans VAN MEIJL	Wageningen University and Research Centre	10%
Keith WIEBE	IFPRI	75%

Flagship 2 – Economy-wide Factors Affecting Agricultural Growth and Rural Transformation

Name	Organization	% time
Regina BIRNER	University of Hohenheim	20%
Alan de BRAUW	IFPRI	40%
Xinshen DIAO (flagship co-leader)	IFPRI	75%
Thomas JAYNE (flagship co-leader)	Michigan State University	25%
Katrina KOSEC	IFPRI	75%
Yanyan LIU	Cornell University	75%
Margaret MCMILLAN	Tufts University	50%
Tewodaj MOGUES	IFPRI	100%
Danielle RESNICK	IFPRI	100%
James THURLOW	IFPRI	100%

Flagship 3 – Inclusive and Efficient Value Chains

Name	Organization	% time
Erwin BULTE (flagship co-leader)	Wageningen University and Research Centre	25%
Andre DEVAUX	CIP	30%
Jason DONOVAN	ICRAF	50%
Froukje KRUIJSSEN	Worldfish	30%
David LABORDE	IFPRI	100%
Mark LUNDY	CIAT	25%
Will MARTIN	IFPRI	50%
Dietmar STOIAN	Biodiversity International	50%
Simla TOKGOZ	IFPRI	100%
Maximo TORERO (flagship co-leader)	IFPRI	75%

Flagship 4 – Social Protection for Agriculture and Resilience

Name	Organization	% time
Akhter AHMED	IFPRI	25%
Harold ALDERMAN	IFPRI	50%
Sarah BAIRD	George Washington University, IFPRI	10%
Michael CARTER	UC Davis	10%
Daniel GILLIGAN (flagship leader)	IFPRI	100%
Melissa HIDROBO	IFPRI	60%
John HODDINOTT	Cornell University	10%
Miguel ROBLES	IFPRI	100%
Shalini ROY	IFPRI	50%
Alemayehu Seyoum TAFESSE	IFPRI	100%

Flagship 5 – Governance of Natural Resources

Name	Organization	% time
Delia CATA CUTAN	ICRAF	25%
Hosaena GHEBRU	IFPRI	100%
Michael HALEWOOD	Biodiversity International	25%
Anne LARSON	CIFOR	60%
Steven LAWRY (flagship co-leader)	CIFOR	50%
Everisto MAPEDZA	IWMI	25%
Ruth MEINZEN-DICK (flagship co-leader)	IFPRI	50%
Blake RATNER	WorldFish	25%
Claudia RINGLER	IFPRI	20%
Meine van NOORDWIJK	ICRAF	20%

Flagship 6 – Cross-cutting Gender Research and Coordination

Name	Organization	% time
Jenny AKER	Tufts University, IFPRI	20%
Cheryl DOSS (flagship leader)	Yale University	30%
Markus GOLDSTEIN	World Bank	10%
Susan KAARIA	FAO	10%
Wanjiru KAMAU-RUTENBERG	African Women in Agricultural Research and Development	10%
Patti KRISTJANSON	ICRAF	100%
Ruth MEINZEN-DICK	IFPRI	25%
Valerie MUELLER	IFPRI	50%
Agnes QUISUMBING	IFPRI	50%
Simone STAIGER-RIVAS	CIAT	30%

3.9 Open Access Management

Planning for and implementing Open Access/Open Data in accordance with the CGIAR Open Access and Data Management (OADM) Policy and FAIR principles, including critical issues and anticipated challenges

PIM will continue to work with IFPRI's Knowledge Management (KM) team, researchers, and partners to comply with the [CGIAR Open Access and Data Management \(OADM\) Policy](#) and its [Implementation Guidelines](#) and to ensure discoverability of the PIM outputs in order to enhance their use towards outcomes. Follow these links for more information on IFPRI's [Open Access Policy](#) and [Open Data Policy](#), which are compliant with the CGIAR OA/OD policy.

Four staff from IFPRI's Knowledge Management team are in charge of implementing the IFPRI OA/OD policy. They allocate approximately 40% of their time to PIM (CVs available [here](#)).

IFPRI's digital repositories enable full access to publications, data, images, and videos and are completely compliant to CGIAR OA/OD plans.

All PIM publications (books, book chapters, journal articles, research monographs, factsheets, policy notes, technical guides, working papers, conference papers, tools, software, and other knowledge products) are catalogued in the [IFPRI digital repository \(IFPRI e-brary\)](#).

All PIM datasets, including Household Survey data and Social Accounting Matrix data, are publicly available via the [IFPRI data repository](#) (open source Dataverse network hosted by Harvard University). In order to facilitate the accessibility and enhance the use of the datasets, a record for each dataset with a minimum level of metadata is created in the [IFPRI e-brary Datasets collection](#) pointing to the data files in Dataverse. PIM data also include [Linked Open Data, data portals, and interactive tools](#) (Food Security Portal, ASTI, HarvestChoice, AGRODEP, SPEED, and Arab Spatial).

When available (that is, for outputs other than non-open-access journal articles or books), electronic copies of the IFPRI/PIM publications are housed in the IFPRI repository. For the outputs generated by the other CGIAR Centers participating in PIM, records are usually metadata-only with a link to the original location, and are either automatically harvested (if possible) or manually created by the IFPRI KM team.

To facilitate discovery through interlinking, PIM products are linked to each other in the IFPRI repositories through "related publications", "related materials", and "associated data" fields. Interlinks are also used as much as possible on the [PIM website](#).

The PIM metadata from IFPRI repositories are harvested by various web portals, outlets and repositories. The LandPortal.net, FAO's AGRIS database, IFPRI.org, CAB Abstracts, Thomson-Reuters Data Citation Index, RePEc, CIARD Ring, and ReSKASS Asia websites harvest content using OAI-PMH or APIs. Content is also contributed to SSRN, Mendeley, Google Books and Play, Apple iTunes, and Amazon Kindle.

With some exceptions, research products are shared with Creative Commons, under the Attribution-Noncommercial License. PIM supports researchers to publish in journals with Gold/Hybrid Open access. When this is not possible, the pre-print or post-print manuscript of the article is deposited in the IFPRI

repository to enhance accessibility. All PIM data are published as open access as long as the privacy and confidentiality rights of human subjects are maintained.

In Phase 1, harvesting PIM outputs from the centers other than IFPRI and cataloguing them in the IFPRI repository in a timely manner has been a challenge. In addition, some of the IFPRI publications produced within PIM in 2012-2014 were initially missing the PIM tag in the metadata, mostly due to the lack of acknowledgement of PIM in these publications. The PIM PMU and the IFPRI KM team have worked together to check the IFPRI collection for such omissions and retroactively correct the metadata. The situation has improved, for both IFPRI and non-IFPRI publications, since the release of the PIM's [Branding and Acknowledgement Guidelines](#) in June 2014. In Phase 2, the new PIM communicators group (see Communications Strategy) and the development of an online tool for monitoring and reporting that will link to the IFPRI Repository should help address these difficulties.

Technical considerations and operations (for example, technical infrastructure and interoperability, data quality assurance, training activities)

PIM publications are stored using the CONTENTdm digital collection management system. CONTENTdm uses the Dublin Core (DC) standards; supports the following data exchange protocols: XML, JSON, and OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting); and has a REST API and RSS feeds.³ Linked Open Data (LOD) capacity is in the process of being added. The IFPRI repositories mentioned above are compliant with the CG-Core metadata schema. Standard controlled vocabulary (AGROVOC, CAB Thesaurus, STW Thesaurus of Economics, and Library of Congress [LOC]), taxonomy, and ontology concepts are used where possible to synchronize and harmonize distribution across multiple outlets. For instance, the LandPortal.net, FAO's AGRIS database, ifpri.org, and ReSKASS Asia websites harvest content from the IFPRI repositories (the first two using OAI-PMH and the last two using API).

In Phase 1, exporting data from the IFPRI repository to the CGSpace repository has been hampered by the **lack of compliance of CGSpace with the API standards**. As a consequence, only a small fraction of the PIM Phase 1 outputs is currently visible in the CGSpace PIM collection. It is hoped that in Phase 2 this interoperability issue will be resolved at the CGIAR level.

Both the publication and dataset repositories have automatic file transformation systems in order to ensure long-term preservation. Data file types uploaded in the "IFPRI Datasets" are also converted into text files for long-term storage and preservation.

³ The Dublin Core is an internationally agreed upon basic metadata scheme that defines 15 general descriptive elements, for example, Creator, Title, Date, Subject, Publisher.

Table 3.9.1: Repositories associated with the different types of PIM outputs

PIM products	Repository	URL	Full content
Books, book chapters, journal articles, research monographs, factsheets, policy notes, technical guides, working papers, conference papers, infographics, and other outputs	IFPRI e-brary (includes different collections)	http://ebrary.ifpri.org	Full content (in some cases third party items contain only metadata with a URL, or DOI to the full text)
	CGSpace (includes different collections)	https://cgspace.cgiar.org/	Yes
	Food Security Portal	http://www.foodsecurityportal.org	Yes
	HarvestChoice project	http://harvestchoice.org	Yes
	CGSpace	https://cgspace.cgiar.org/	Yes
Knowledge products (websites, tools, models)	Program for Biosafety System (PBS)	http://pbs.ifpri.info	Yes
Datasets	IFPRI Dataverse	https://dataverse.harvard.edu/dataverse/IFPRI	Yes
	Linked Open Data (e.g. SPEED, Arab Spatial)	http://data.ifpri.org	Yes
Images	IFPRI Flickr	https://www.flickr.com/photos/ifpri	Yes
	IFPRI Instagram	https://www.instagram.com/ifpri/	Yes
Videos, audio presentations	You tube	https://www.youtube.com/user/IFPRI	Yes
Program information and documents, blogposts, presentations, toolkits, guides	PIM website	http://pim.cgiar.org/	Yes
Presentations	SlideShare	http://www.slideshare.net/ifpri	Yes

Coordination and decision making (for example, workflows/procedures, capacity, and governance)

Building on the working relationships developed in Phase 1, the PMU will coordinate with IFPRI's Knowledge Management team to improve procedures for effective discoverability of the PIM outputs. **The newly created PIM communicators group will be instrumental in collecting the information on the products so as to ensure proper tagging in the IFPRI Repository.** In addition, the **online monitoring and evaluation system** to be implemented jointly with CCAFS, A4NH, and WLE in 2016-2017 will facilitate the

systematic inclusion in the IFPRI Repository of all Participating Centers' outputs. For both IFPRI and non-IFPRI products, IFPRI's Knowledge Management team will perform a quality assurance function for the metadata. IFPRI's Knowledge Management team and PIM will jointly identify partners and collaborators whose dissemination channels are useful to tap into to increase the visibility and use of the PIM outputs.

The PMU will ensure that all PIM projects develop a plan for open access and open data, including (a) approaches for making freely available articles/chapters/books published in sources requiring payment for access, (b) contact person to share the information about the publications with the PMU, (c) challenges for open access/data, and (d) adequate budget for publishing with commercial publishers, maintaining tools and online portals, etc. IFPRI's and other Centers' Knowledge Management teams will serve as a resource for researchers to help determine if a publisher complies with CGIAR open access policy, and if not, to provide alternatives for consideration. Information will be requested about application of OA principles at project level as part of the PIM annual reporting process.

In addition to the resources and training on OA/OD provided by IFPRI to its researchers, awareness of the OADM Policy will be raised among PIM flagship and cluster leaders, to allow them to play an active role in ensuring that outputs of their flagship/cluster are compliant. Knowledge Management staff of IFPRI and key participating centers will support researchers in meeting the open access requirements, and explore the options of reduced fee/discounts for gold/hybrid open access in journals that publish many PIM products.

Narrative for required resources (for example, human and financial)

Infrastructures and staff required to implement the OADM Policy are covered through overhead costs charged by the Lead Center, and include: maintenance of digital content collections; Online Public Access Catalog (OPAC)/library catalog systems; website development related to repositories; promotion and training in support of OA/OD. **Additional costs specific to PIM research activities (essentially OA fees for journal articles) are budgeted for at project level** under the "Supplies and Services" category.

3.10 Intellectual Asset Management

Overview

PIM is committed to sound management of intellectual assets (IA) to effectively disseminate research outputs and maximize impact. The PIM research outputs should be managed in line with the [CGIAR IA principles on the management of IA](#) and the [Implementation Guidelines for the CGIAR IA principles on the management of IA](#). IFPRI's Communications and Knowledge Management Division (CKM) manages issues relating to intellectual assets with assistance from IFPRI's Finance and Administration Division on legal issues when needed. The CKM staff in charge of overseeing intellectual asset management spend about 20% of their time on PIM issues. CVs are attached [here](#).

PIM outputs are comprised principally of information products, which include **publications, translations, and datasets**. The other types of IAs listed in the CGIAR IA principles (germplasm, technologies, and geographical indications), although highly relevant for other CRPs, are not expected outputs of PIM. Even though PIM will increase its private sector engagement in Phase 2, the program requires a very low level of IA management/legal expertise compared to CRPs that conduct complex licensing arrangements. Therefore, for PIM, **IA management significantly overlaps with OA management** (see Section 3.9).

PIM commits to **prompt and broad dissemination of research results** (see Section 3.9), with an emphasis on producing International Public Goods. Information on PIM's partnerships and dissemination strategies towards achieving global accessibility and impact maximization can be found in Sections 1.0.3 (Impact Pathway and Theory of Change) and 1.8 (Partnerships and Comparative Advantage).

Key dissemination pathways of the PIM data and information products (databases, publications, training materials, tools, and maps) for maximizing global impact include open access repositories, adapted information channels to specific target groups, partnership approaches and capacity development, multi-stakeholder platforms, communities of practice, and so on.

Key issues and challenges relating to intellectual assets management within the CRP are:

- **Tracking and PIM branding of outputs from bilaterally-W3-funded PIM projects**
- **Ensuring that proper budgets are secured for open-access requirements for all PIM projects.**

In line with the requirements concerning **farmer's rights** in the CGIAR IA Principles, PIM's research contributes to promoting farmers' empowerment, especially through the work under Flagship 5 on tenure of land and rights to water, trees, fisheries, genetic resources, and the work under Flagship 6 on gender and women's rights.

Planning and tracking

For Window 1-2 funded activities, outputs and dissemination pathways are included at the planning stage in the activity description forms and at implementation stage in the annual activity reports and reviewed by flagship/cluster leaders and the PMU. Since Phase 1, PIM Management requests teams to include the cost of implementing IA principles (mostly making publications and datasets open access) in project budgets and asks for information about application of IA principles as part of the reporting process. Periodic meetings are held between the PMU, the flagship/cluster leaders, and the Participating Centers' Focal Points to discuss status of delivery and any concern related to IA management and especially open-

access. The Program Management Unit can then request assistance from the Lead Center's IP Focal Point if needed. In terms of dissemination pathways, planning and tracking of outreach activities and of evidence of initial use of outputs, including the role of outreach partners, will be strengthened in Phase 2. For bilaterally/Window 3 funded-projects, to avoid duplication, PIM relies primarily on the Centers' IA management procedures. The online monitoring and evaluation tool that PIM will adopt in 2017 in collaboration with CCAFS, A4NH, and WLE will facilitate the planning and tracking of IAs.

Capacity and decision making

Given that the scope of IA management for PIM is the same as OA management, PIM will not put in place any CRP-specific IP governance/oversight mechanism, but instead will **work with the IFPRI IP Focal Point on all matters related to the implementation of the CGIAR IA principles** (and especially to implement the best practices shared through the CGIAR Legal/IP Network). The CGIAR IA Principles will be incorporated by reference in all partnership agreements, and partnership agreements will include appropriate wording on intellectual property rights.

Budget

For the reasons explained above, the budget for IA management is **the same as the budget for OA management** (See Section 3.9).

3.11 Other Annexes

3.11.1 List of acronyms used in PIM Phase 2 proposal

3ie: International Initiative for Impact Evaluation
A4NH: CGIAR Research Program on Agriculture for Nutrition and Health
AAS: CGIAR Research Program on Aquatic Agricultural Systems (Phase 1)
AfDB: African Development Bank
AFS: Agrifood system (CRP)
AgMIP: Agricultural Model Intercomparison and Improvement Project
AGP: Ethiopian Agricultural Growth Program
AGRA: Alliance for a Green Revolution in Africa
AGRIS: International System for Agricultural Science and Technology (FAO)
AGRODEP: African Growth and Development Policy Modeling Consortium
AGROVOC: controlled vocabulary covering all areas of interest of the Food and Agriculture Organization of the United Nations
APAARI: Asia-Pacific Association of Agricultural Research Institutions
ASARECA: Association for Strengthening Agricultural Research in Eastern and Central Africa
ASTI: Agricultural Science and Technology Indicators
ATA: Ethiopian Agricultural Transformation Agency
AU: African Union
AUC: African Union Commission
AU-LPI: African Union's Land Policy Initiative
AWARD: African Women in Agricultural Research and Development
BCC: behavior change communication
BMGF: Bill & Melinda Gates Foundation
BRAC: Bangladesh Rural Advancement Committee
BWS: best-worst scaling
CAADP: Comprehensive African Agricultural Development Programme
CAB: Centre for Agriculture and Biosciences
CapDev: Capacity Development
CAPRI: CGIAR Systemwide Program on Collective Action and Property Rights
CASE: Centre for the Study of African Economies (Oxford University)
CCAFS: CGIAR Research Program on Climate Change, Agriculture and Food Security
CCARDESA: Centre for Coordination of Agricultural Research & Development for Southern Africa
CEMAC: Central African Economic and Monetary Community
CFA: Cooperation Framework Agreement
CGE: computable general equilibrium
CIARD: Coherence in Information for Agricultural Research for Development
CIAT: International Center for Tropical Agriculture
CIFOR: Centre for International Forestry Research
CIMMYT: International Maize and Wheat Improvement Center
CIMSANS: Center for Integrated Modeling of Sustainable Agriculture & Nutrition Security
CIP: International Potato Center
CIRAD: Centre de coopération internationale en recherche agronomique pour le développement
CKM: Communications and Knowledge Management (IFPRI)
COMESA: Common Market for Eastern and Southern Africa

CoP: community of practice
CORAF: West and Central African Council for Agriculture Research and Development
CRP: CGIAR Research Program
CRS: Catholic Relief Services
CSA: climate-smart agriculture
CSO: civil society organization
CSSP: Country Strategy Support Program
CV: curriculum vitae
DAI: Development Alternatives Incorporated
DC: Dublin Core
DCL: Dryland Cereals and Legume Agrifood System (Phase 2)
DevCo: Development and Cooperation (EC-DG)
DFID: Department for International Development (UK)
DG: Director General
EC: European Commission
EC DG: European Commission, Directorate-General
ECDPM: European Centre for Development Policy Management
ECOWAS: Economic Community of West African States
ERATO: Export Restrictions And import Tariffs Overall impacts
EU: European Union
FAC: Future Agricultures Consortium
FAO: Food and Agriculture Organization of the United Nations
FARA: Forum for Agricultural Research in Africa
FES: Foundation for Ecological Security
FSP: Feed the Future Innovation Lab for Food Security Policy
FTA: CGIAR Research Program on Forests, Trees and Agroforestry
FTE: full-time equivalent
G20: Group of Twenty
G7: Group of Seven
GAAP: Gender, Agriculture, and Assets Project
GAP: Gender in Agriculture Partnership
GCARD: Global Conference on Agricultural Research for Development
GCMs: General Circulation Models
GFAR: Global Forum on Agricultural Research
GFRAS: Global Forum for Rural Advisory Services
GHG: greenhouse gas
GIS: geographic information systems
GIZ: Deutsche Gesellschaft für Internationale Zusammenarbeit
GREAT: Gender-Responsive Researchers Equipped for Agricultural Transformation
GRET: Professionals for Fair Development (in Senegal)
GTAP: Global Trade Analysis Project
IADB: Inter-American Development Bank
IA: intellectual asset
ICAR: Indian Council of Agricultural Research
ICARDA: International Center for Agricultural Research in the Dry Areas
ICRAF: World Agroforestry Centre
ICRG: International Country Risk Guide
ICRISAT: International Crops Research Institute for the Semi-Arid Tropics

ICRP: Integrating CRP
ICT: information and communications technology
ICTSD: International Centre for Trade and Sustainable Development
IDB: Inter-American Development Bank
IDO: intermediate development outcome
IDS: Institute for Development Studies (at the University of Sussex)
IEA: Independent Evaluation Arrangement (CGIAR)
IEG: Independent Evaluation Group
IFAD: International Fund for Agricultural Development
IFC: International Finance Corporation
IFI: international financial institution
IFPRI: International Food Policy Research Institute
IIASA: International Institute for Applied Systems Analysis
IICA: Inter-American Institute for Cooperation on Agriculture
IISD: International Institute for Sustainable Development
IITA: International Institute of Tropical Agriculture
ILC: International Land Coalition
ILRI: International Livestock Research Institute
IMF: International Monetary Fund
IMPACT: International Model for Policy Analysis of Agricultural Commodities and Trade
INRA: French National Institute for Agricultural Research
IP: intellectual property
IRC: International Rescue Committee
IRRI: International Rice Research Institute
ISC: Independent Steering Committee
ISPC: Independent Science and Partnership Council (of CGIAR)
ISSD: Integrated Seed Sector Development
IWMI: International Water Management Institute
KM: Kaleidoscope Model
LGAF: Land Governance Assessment Framework (World Bank)
LPI: Land Policy Initiative
LSMS: Living Standards Measurement Study
LSMS–ISA: Living Standards Measurement Study–Integrated Surveys on Agriculture
LTA: long-term agreement
M&E: monitoring and evaluation
MAFAP: FAO’s Monitoring and Analyzing Food and Agricultural Policies program
MARLO: Managing Research for Learning and Outcomes
MC: Management Committee (of PIM)
MEL: monitoring, evaluation and learning
MENA: Middle East and North Africa
MEXA: Measuring Asset Ownership from a Gender Perspective
MIRAGRODEP: Modelling International Relationships under Applied General equilibrium for agRODEP
MIRR: modified internal rate of return
MOU: memorandum of understanding
MSc: Master of Science
MSU: Michigan State University
NARS: national agricultural research system
NGO: nongovernmental organization

NIAP: National Institute of Agricultural economics and Policy research
NRA: nominal rate of assistance
NRM: natural resource management
NRP: nominal rate of protection
OA: open access
OA/OD: open access/open data
OADM: open access and data management (of CGIAR)
OAI-PMH: Open Archives Initiative Protocol for Metadata Harvesting
OECD: Organisation for Economic Co-operation and Development
OPAC: Online public access catalog
OPHI: Poverty and Human Development Initiative (Oxford)
PARI: Program on Accompanying Research for agricultural Innovation
PBS: Program on Biosafety Systems
PhD: Doctor of Philosophy
PHL: postharvest losses
PIK: Potsdam Institute for Climate Impact Research
PIM: CGIAR Research Program on Policies, Institutions, and Markets
PMCA: Participatory Market Chain Approach (tool)
PMU: Program Management Unit (of PIM)
PORIA: impact assessment of policy-oriented research
POWB: program of work and budget
PPAs: program participant agreements
PROGRESA: Mexico's Program on Education, Health and Nutrition
PSE: producer support estimate
PSNP: Productive Safety Net Program (Ethiopia)
R&D: research and development
RaTA: Rapid Land Tenure Assessment for Identifying the Nature of Land Tenure Conflicts
RBM: Results-Based Management
RCTs: randomized control trials
RDD: regression discontinuity design
REDD+: Reducing Emissions from Deforestation and forest Degradation
ReNAPRI: Regional Network of Agricultural Policy Research Institutes
RePEc: Research Papers in Economics
ReSAKSS: Regional Strategic Analysis and Knowledge Support System
REST: Representational State Transfer
RING: Routemap to Information Nodes and Gateways
RSS: Rich Site Summary
RTB: CGIAR Research Program on Roots, Tubers and Bananas
SADC: Southern African Development Community
SAI: Sustainable Agriculture Initiative (Platform)
SAM: Social Accounting Matrix
SDG: Sustainable Development Goal
SFL: Sustainable Food Lab
SIAC: Strengthening Impact Assessment in the CGIAR
SLO: System-Level Outcome
SNV: Netherlands Development Organisation
SOFA: State of Food and Agriculture (FAO)
SPAP: Science and Policy Advisory Panel (of PIM)

SPEAR: Supporting Policies, Programs and Enabling Action through Research
SPEED: Statistics of Public Expenditure for Economic Development database
SPIA: Standing Panel on Impact Assessment (of CGIAR)
SRF: Strategy and Results Framework (of CGIAR)
SRO: subregional organization
SSRN: Social Science Research Network
ST&I: science, technology and innovation
STAARS: Structural Transformation of African Agriculture on Rural Spaces program
TMRI: Transfer Modality Research Initiative
TOR: term of reference
UC: University of California
UN: United Nations
UNICEF: United Nations Children's Fund
US: United States
USAID: United States Agency for International Development
VFT: volunteer farmer trainer
VGs: Voluntary Guidelines
WAEMU: West African Economic and Monetary Union
WEAI: Women's Empowerment in Agriculture Index
WEF: World Economic Forum
WFP: World Food Programme
WGI: worldwide governance indicators
WLE: CGIAR Research Program on Water, Land, and Ecosystems
WTO: World Trade Organization
WUR: Wageningen University and Research Centre
WVI: World Vision International

3.11.2 List of references in PIM Phase 2 proposal

- Abdoulaye, T., Alene, A., Rusike, J., & Adebayo, A. (2014). Strategic Assessment of Yam Research Priorities. Lima, Peru. Retrieved from www.rtb.cgiar.org
- Abdoulaye, T., Alene, A., Rusike, J., & Adebayo, A. (2015). Results of a global online expert survey: Major constraints, opportunities, and trends for yam production and marketing and priorities for future RTB yam research.
- Aflagah, F. K. D., Bernard, T., & Viceisza, A. (2015). Communication and coordination: experimental Evidence from farmer groups in Senegal (IFPRI Discussion Paper No. 01450). Washington, DC.
- Agarwal, B. (2010). Gender and Green Governance: The Political Economy of Women's Presence Within and Beyond Community Forestry. Oxford and New Delhi: Oxford University Press.
- Aguiar, A., Carranza, E., Goldstein, M., Kilic, T., & Oseni, G. (2015). Decomposition of gender differentials in agricultural productivity in Ethiopia. *Agricultural Economics (United Kingdom)*, 46(3), 311–334. <http://doi.org/10.1111/agec.12167>
- Ahmed, A. U., Quisumbing, A. R., Nasreen, M., Hoddinott, J. F., & Bryan, E. (2009). Comparing Food and Cash Transfers to the Ultra Poor in Bangladesh (IFPRI Research Monograph No. 163). Washington, DC.
- Alderman, H. (2015). Nutrition and Social Protection. Background paper for Global Forum on Nutrition-Sensitive Social Protection Programs. Moscow.
- Alkire, S., Meinzen-Dick, R., Peterman, A., Quisumbing, A., Seymour, G., & Vaz, A. (2013). The Women's Empowerment in Agriculture Index. *World Development*, 52, 71–91. <http://doi.org/10.1016/j.worlddev.2013.06.007>
- Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics*, 95(9-10), 1082–1095. <http://doi.org/10.1016/j.jpubeco.2011.03.003>
- Allendorf, K. (2007). Do Women's Land Rights Promote Empowerment and Child Health in Nepal? *World Development*, 35(11), 1975–1988. <http://doi.org/10.1016/j.worlddev.2006.12.005>
- Anderson, K., Martin, W., & van der Mensbrugge, D. (2006). Distortions to World Trade: Impacts on Agricultural Markets and Farm Incomes. *Review of Agricultural Economics, Agricultural and Applied Economics Association*, 28(2), 168–194.
- Andrews, M., Pritchett, L., & Woolcock, M. (2013). Escaping Capability Traps through Problem-Driven Iterative Adaptation. *World Development*, 51, 234-244.
- Aramyan, L., Lansink, A. O., & van Kooten, O. (2005). Testing a performance measurement framework for agri-food supply chains. In 15th Congress - Developing Entrepreneurship Abilities to Feed the World in a Sustainable Way (pp. 86–97). Retrieved from <http://ideas.repec.org/p/ags/ifma05/24228.html>
- Ashraf, N., Giné, X., & Karlan, D. (2009). Finding Missing Markets (and a Disturbing Epilogue): Evidence from an Export Crop Adoption and Marketing Intervention in Kenya. *American Journal of Agricultural Economics*, 91 (4), 973–990. <http://doi.org/10.1111/j.1467-8276.2009.01319.x>

- Athey, S., & Imbens, G. W. (2006). Identification and Inference in Nonlinear Difference-in-Differences Models. *Econometrica*, 74(2), 431–497. <http://doi.org/10.1111/j.1468-0262.2006.00668.x>
- Attanasio, O., Meghir, C., & Szekely, M. (2003). Using Randomized Experiments and Structural Models for “Scaling Up”: Evidence from the PROGRESA Evaluation (EDePo No. EWP04/03).
- Augenblick, N., Niederle, M., & Sprenger, C. (2015). Working Over Time: Dynamic Inconsistency in Real Effort Tasks*. *The Quarterly Journal of Economics*. <http://doi.org/10.1093/qje/qjv020>
- Backiny-Yetna, P., & McGee, K. (2015). Gender Differentials and Agricultural Productivity in Niger (Policy Research Working Paper No. 7199). Washington, DC. Retrieved from <http://papers.ssrn.com/abstract=2568933>
- Banerjee, A., Duflo, E., Goldberg, N., Karlan, D., Osei, R., Pariente, W., ... Udry, C. (2015). A multifaceted program causes lasting progress for the very poor: Evidence from six countries. *Science*, 348(6236), 12 60799–1– 1260799–16. <http://doi.org/10.1126/science.1260799>
- Barrera-Osorio, F., Bertrand, M., Linden, L. L., & Perez-Calle, F. (2011). Improving the design of conditional transfer programs: Evidence from a randomized education experiment in Colombia. *American Economic Journal: Applied Economics*, 3(2), 167–195. <http://doi.org/10.1257/app.3.2.167>
- Bates, R. H. (1981). *Markets and States in Tropical Africa: The Political Basis of Agricultural Policies*. Berkeley, CA: University of California Press.
- Bates, R. H., & Blocka, S. A. (2013). Revisiting African Agriculture: Institutional Change and Productivity Growth. *The Journal of Politics*, 75(2), 372–384. <http://doi.org/10.1017/S0022381613000078>.
- Beaman, L., Yishay, A. Ben, Magruder, J., & Mobarak, A. M. (2015). Can Network Theory-based Targeting Increase Technology Adoption ? Working Paper.
- Beamon, B. M. (1999). Measuring supply chain performance. *International Journal of Operations & Production Management*, 19(3), 275–292. <http://doi.org/10.1108/01443579910249714>
- Behrman, J., Billings, L., & Peterman, A. (2013). Evaluation of Grassroots Community – Based Legal Aid Activities in Uganda and Tanzania (CAPRI Working paper No. 108). Washington, DC. Retrieved from <http://dx.doi.org/10.2499/CAPRIWP108>
- Beintema, N. (n.d.). *Agricultural Research in Africa: Investing in Future Harvests*. Washington, DC.
- Beintema, N. (2014). Enhancing Female Participation in Agricultural Research and Development: Rationale and Evidence. In A. R. Quisumbing, R. Meinzen-Dick, T. L. Raney, A. Croppenstedt, J. A. Behrman, & A. Peterman (Eds.), *Gender in Agriculture: Closing the Knowledge Gap* (pp. 393–409). Dordrecht, Netherlands: Springer.
- Benhabib, J., Bisin, A., & Schotter, A. (2009). Present-bias, quasi-hyperbolic discounting, and fixed costs. *Games and Economic Behavior*, 69(2), 205–223. <http://doi.org/10.1016/j.geb.2009.11.003>
- Berhane, G., Gilligan, D. O., Hoddinott, J., Kumar, N., & Taffesse, A. S. (2014). Can Social Protection Work in Africa? The Impact of Ethiopia’s Productive Safety Net Programme. *Economic Development and Cultural Change*, 63(1), 1–26. <http://doi.org/10.1086/677753>
- Bernard, T., de Janvry, A., Mbaye, S., & Sadoulet, E. (2016). Product markets reforms and technology adoption by Senegalese onion producers (No. Forthcoming). Washington, DC.

- Bernard, T., Hoidrobo, M., Le Port, A., & Rawat, R. (2016). Nutrition incentives in dairy contract farming in Northern Senegal (IFPRI Discussion Paper No. Forthcoming). Washington, DC.
- Billings, L., Meinzen-Dick, R., & Mueller, V. (2014). Implications of Community-based Legal Aid Regulation on Women's Land Rights (IFPRI Research Brief No. 20). Washington, DC.
- Birner, R., & Resnick, D. (2010). The Political Economy of Policies for Smallholder Agriculture. *World Development*, 38(10), 1442–1452. <http://doi.org/10.1016/j.worlddev.2010.06.001>
- Blattman, C., Fiala, N., & Martinez, S. (2013). Credit Constraints, occupational choice, and the process of development: Long term evidence from cash transfers in Uganda.
- Blattman, C., & Ralston, L. (2015). Generating employment in poor and fragile states: Evidence from labor market and entrepreneurship programs.
- Boone, C. (2003). *Political Topographies of the African State: Territorial Authority and Institutional Choice*. Cambridge, UK and New York, NY: Cambridge University Press.
- Boone, R., Covarrubias, K., Davis, B., & Winters, P. (2013). Cash transfer programs and agricultural production: The case of Malawi. *Agricultural Economics*, 44(3), 365–378. <http://doi.org/10.1111/agec.12017>
- Booth, D. (2011). Introduction: Working with the Grain? The Africa Power and Politics Programme. *IDS Bulletin*, 42(2), 1-10.
- Booth, D. (2012). Working with the Grain and Swimming Against the Tide: Barriers to Uptake of Research Findings on Governance and Public Services in Low-Income Africa. *Public Management Review*, 14(2), 163-180.
- Brau, A. de, Huang, J., Zhang, L., & Rozelle, S. (2013). The Feminization of Agriculture with Chinese Characteristics. *Journal of Development Studies*, 49(5), 689–704. <http://doi.org/10.1080/00220388.2012.724168>
- Brooks, K., Zorya, S., Gautam, A., & Goyal, A. (2013). Agriculture as a Sector of Opportunity for Young People in Africa. Policy Research Working Paper 6473, The World Bank
- Bryan, G., Chowdhury, S., & Mobarak, A. M. (2014). Under-investment in a Profitable Technology : The Case of Seasonal Migration in Bangladesh. *Econometrica*, 82(5), 1671–1748. <http://doi.org/10.3982/ECTA10489>
- Ceballos, F., & Robles, M. (2014). Insurance opportunities against weather risks for the rural poor. In S. Fan, R. Pandya-Lorch, & S. Yosef (Eds.), *Resilience for food and nutrition security* (pp. 83–90). Washington, DC: International Food Policy Research Institute (IFPRI).
- Cervigni, R., & Morris, M. (2016). Confronting Drought in Africa's Drylands : Opportunities for Enhancing Resilience. Washington, DC. Retrieved from <https://openknowledge.worldbank.org/handle/10986/23576>
- Chattopadhyay, R., & Duflo, E. (2004). Women as Policy Makers: Evidence from a Randomized Policy Experiment in India. *Econometrica*, 72(5), 1409–1443. <http://doi.org/10.1111/j.1468-0262.2004.00539.x>
- Christiaensen, L., & Todo, Y. (2014). Poverty reduction during the rural-urban transformation - The role of the missing middle. *World Development*, 63, 43–58.

<http://doi.org/10.1016/j.worlddev.2013.10.002>

- Chung, K. (2000a). Issues and Approaches in the Use of Integrated Methods. In M. Bamberger (Ed.), *Integrating Quantitative and Qualitative Research in Development Projects* (pp. 37–46). Washington, DC: World Bank.
- Chung, K. (2000b). Qualitative Data Collection Techniques. In M. Grosh & P. Glewwe (Eds.), *Designing Household Survey Questionnaires for Developing Countries*. Washington, DC: World Bank.
- Clark, W.C., Tomich, T.P., van Noordwijk, M., Guston, D., Catacutan, D., Dickson, N. M., & McNie, E. (2011). Boundary Work for Sustainable Development: Natural Resource Management at the Consultative Group on International Agricultural Research (CGIAR). *PNAS* 10.1073/pnas.0900231108
- Clarke, D. J., & Kumar, N. (2015). Microinsurance decisions: Gendered evidence from rural Bangladesh (IFPRI Discussion Paper No. 1465). Washington, DC. Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129752>
- Cooley, L., & Kohl, R. (2006). *Scaling Up—From Vision to Large-scale Change. A Management Framework for Practitioners*. March 2006. Management Systems International. Washington DC.
- Cooley, L., & Linn, J. F. (2014). *Taking Innovations to Scale: Methods, Applications and Lessons. Results for Development (R4D)*. Management Systems International. Washington DC.
- Court, J., & Maxwell, S. (2005). Policy entrepreneurship for poverty reduction: Bridging research and policy in international development. *Journal of International Development*, 17(6), 713–725. <http://doi.org/10.1002/jid.1234>
- Creamer, B., Rusike, J., Gonzalez, C., Abdoulaye, T., & Alene, A. (2014). Prioritization of options for Cassava research for development – Results from a global expert survey.
- Crewe, E., & Young, J. (2002). *Bridging Research and Policy : Context , Evidence and Links*. ODI Working Paper 173, 33. Retrieved from <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/184.pdf>
- Cunha, J., de Giorgi, G., & Jayachandran, S. (2011). The price effects of cash versus in-kind transfers. National Bureau of Economic Research Working Paper.
- de Brauw, A., Gilligan, D., Hoddinott, J., & Roy, S. (2015a). Bolsa Família and Household Labor Supply. *Economic Development and Cultural Change*, 63(3), 423 – 457.
- de Brauw, A., Gilligan, D. O., Hoddinott, J., & Roy, S. (2014). The Impact of Bolsa Família on Women’s Decision-Making Power. *World Development*, 59, 487–504. <http://doi.org/10.1016/j.worlddev.2013.02.003>
- de Brauw, A., Gilligan, D. O., Hoddinott, J., & Roy, S. (2015b). The Impact of Bolsa Família on Schooling. *World Development*, 70, 303–316. <http://doi.org/10.1016/j.worlddev.2015.02.001>
- de Brauw, A., & Mueller, V. (2012). Do Limitations in Land Rights Transferability Influence Mobility Rates in Ethiopia? *Journal of African Economies* , 21 (4) , 548–579. <http://doi.org/10.1093/jae/ejs007>
- de Brauw, A., Mueller, V., & Lee, H. L. (2014). The Role of Rural–Urban Migration in the Structural Transformation of Sub-Saharan Africa. *World Development*, 63, 33–42. <http://doi.org/10.1016/j.worlddev.2013.10.013>

- Deininger, K., Selod, H., & A Burns. (2012). *The Land Governance Assessment Framework: Identifying and monitoring good practice in the land sector*. Washington DC: World Bank.
- de Janvry, A., Fafchamps, M., & Sadoulet, E. (1991). Peasant Household Behaviour with Missing Markets: Some Paradoxes Explained. *The Economic Journal*, 101(409), 1400–1417. <http://doi.org/10.2307/2234892>
- De la O Campos, A. P., Warring, N., Brunelli, C., Doss, C., & Kieran, C. (2015). *Gender and Land Statistics Recent developments in FAO 's Gender and Land Rights Database*. Rome, Italy. Retrieved from <http://www.fao.org/3/a-i4862e.pdf>
- Delavallade, C., Dizon, F., Hill, R. V., & Petraud, J. P. (2015). *Managing risk with insurance and savings: Experimental evidence for male and female farm managers in the Sahel (Policy Research Working Paper No. 7176)*. Policy Research Working Paper. Washington, DC. Retrieved from <http://ideas.repec.org/p/wbk/wbrwps/7176.html>
- Devaux, A., Torero, M., Donovan, J., & Horton, D. (2016). *Innovation for Inclusive Value-Chain Development: Successes and Challenges*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Diao, X., Hazell, P., & Thurlow, J. (2010). The Role of Agriculture in African Development. *World Development*, 38(10), 1375–1383. <http://doi.org/10.1016/j.worlddev.2009.06.011>
- Diao, X., & Kennedy, A. (2016). Economywide Impact of Maize Export Bans on Agricultural Growth and Household Welfare in Tanzania: A Dynamic Computable General Equilibrium Model Analysis. *Development Policy Review*, 34(1), 101–134. <http://doi.org/10.1111/dpr.12143>
- Diao, X., & McMillan, M. (2015). *Toward an understanding of economic growth in Africa: A re-interpretation of the Lewis Model (NBER Working Paper No. 21018)*. Cambridge, MA. Retrieved from <http://www.nber.org/papers/w21018>
- Díaz-Bonilla, E., & Laborde, D. (2015). *The Bali Agreement: An Assessment from the Perspective of Developing Countries (IFPRI Discussion Paper No. 01444)*. Washington, DC.
- Donovan, J., Franzel, S., Cunha, M., Gyau, A., & Mithöfer, D. (2015). Guides for value chain development: a comparative review. *Journal of Agribusiness in Developing and Emerging Economies*, 5(1), 2–23. <http://doi.org/10.1108/JADEE-07-2013-0025>
- Donovan, J., & Poole, N. (2014). Changing asset endowments and smallholder participation in higher value markets: Evidence from certified coffee producers in Nicaragua. *Food Policy*, 44, 1–13. <http://doi.org/10.1016/j.foodpol.2013.09.010>
- Donovan, J., Stoian, D., & Poole, N. (2008). *Global review of rural community enterprises: Global review of rural community enterprises (Technical Series, Technical Bulletin No. 29)*. Turrialba, Costa Rica.
- Dorosh, P., & Thurlow, J. (2013). Agriculture and small towns in Africa. *Agricultural Economics (United Kingdom)*, 44(4-5), 449–459. <http://doi.org/10.1111/agec.12027>
- Dorosh, P., & Thurlow, J. (2014a). *Beyond agriculture versus nonagriculture: Decomposing sectoral growth–poverty linkages in five African countries*. Retrieved from <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/128705/filename/128916.pdf>
- Dorosh, P., & Thurlow, J. (2014b). *Can Cities or Towns Drive African Development? Economywide*

- Analysis for Ethiopia and Uganda. *World Development*, 63, 113–123.
<http://doi.org/10.1016/j.worlddev.2013.10.014>
- Doss, C., Kovarik, C., Peterman, A., Quisumbing, A., & van den Bold, M. (2015). Gender inequalities in ownership and control of land in Africa: myth and reality. *Agricultural Economics*, 46(3), 403–434.
<http://doi.org/10.1111/agec.12171>
- Duflo, E., Kremer, M., & Robinson, J. (2011). Nudging Farmers to Use Fertilizer: Theory and Experimental Evidence from Kenya. *American Economic Review*, 101(6), 2350–2390. Retrieved from
<http://www.aeaweb.org/articles.php?doi=10.1257/aer.101.6.2350>
- Evans, P. (2004). Development as Institutional Change: The Pitfalls of Monocropping and the Potentials of Deliberation. *Studies in Comparative International Development*, 38(4), 30-52.
- Fan, S., Gulati, A., & Thorat, S. (2008). Investment, subsidies, and pro-poor growth in rural India. *Agricultural Economics*, 39(2), 163–170. <http://doi.org/10.1111/j.1574-0862.2008.00328.x>
- FAO. (2015). *The State of Food and Agriculture 2015 (SOFA): Social Protection and Agriculture: Breaking the Cycle of Rural Poverty*. Rome, Italy. Retrieved from
<http://www.fao.org/documents/card/en/c/ab825d80-c277-4f12-be11-fb4b384cee35/>
- Fatás, A., & Mihov, I. (2013). Policy volatility, institutions, and economic growth, 95(May), 362–376.
http://doi.org/10.1162/REST_a_00265
- Filmer, D., Fox, L., Brooks, K., Goyal, A., Mengistae, T., Premand, P., Ringold, D., Sharma, S., & Zorya, S (2014). *Youth Employment in Sub-Saharan Africa*. The World Bank.
- Fiszbein, A., Kanbur, R., & Yemtsov, R. (2013). *Social Protection , Poverty and the Post-2015 Agenda (Policy Research Working paper No. 6469)*. Washington, DC.
- Fiszbein, A., & Schady, N. (2009). *Conditional cash transfers. A World Bank Policy Research Report*. Washington, DC.
- Fletschner, D., & Kenney, L. (2014). *Rural Women’s Access to Financial Services: Credit, Savings, and Insurance*. In A. R. Quisumbing, R. Meinzen-Dick, T. L. Raney, A. Croppenstedt, J. A. Behrman, & A. Peterman (Eds.), *Gender in Agriculture: Closing the Knowledge Gap* (pp. 187–208). Dordrecht, Netherlands: Springer.
- Franzel, S., Degrande, A., Kiptot, E., Kundhlande, G., Tsafack, S., & Simpson, B. (n.d.). *Does Farmer-to-Farmer Extension Increase Women’s Participation and Access to Advisory Services? Lessons from Kenya, Cameroon and Malawi*. *Journal of International Agricultural and Extension Education*.
- Galudra, G., Sirait, M., & Pradhan, U. (2013). *Rapid land tenure assessment (RaTA): understanding land tenure conflicts*. In M. van Noordwijk, B. Lusiana, B. Leimona, S. Dewi, & D. Wulandari (Eds.), *Negotiation-support toolkit for learning landscapes*. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.
- Gan, L., Hernandez, M. A., & Liu, Y. (2013). *Group lending with heterogeneous types (IFPRI Discussion Paper No. 01268)*. Washington, DC.
- Garbarino, S., & Holland, J. (2009). *Quantitative and qualitative methods in impact evaluation and measuring results*. Issue Paper: Governance and Social Development Resource Council. Retrieved from <http://epapers.bham.ac.uk/646/>

- Gbegbelegbe, S., Chung, U., Shiferaw, B., Msangi, S., & Tesfaye, K. (2014). Quantifying the impact of weather extremes on global food security: A spatial bio-economic approach. *Weather and Climate Extremes*, 4, 96–108. <http://doi.org/10.1016/j.wace.2014.05.005>
- Gechter, M. (2015). Generalizing the Results from Social Experiments: Theory and Evidence from Mexico and India.
- Gereffi, G., Humphrey, J., & Sturgeon, T. (2005). The governance of global value chains. *Review of International Political Economy*, 12(1), 78–104. <http://doi.org/Doi 10.1080/09692290500049805>
- German, L., Schoneveld, G. C., & Pacheco, P. (2011). Local social and environmental impacts of biofuels: global comparative assessment and implications for governance. *Ecology and Society*, 16(4), 29.
- Gertler, P. J., Martinez, S., Premand, P., Rawlings, L. B., & Vermeersch, C. M. J. (2011). *Impact Evaluation in Practice*. Washington, DC: The World Bank. <http://doi.org/10.1596/978-0-8213-8541-8>
- Gertler, P. J., Martinez, S. W., & Rubio-Codina, M. (2012). Investing Cash Transfers to Raise Long-Term Living Standards. *American Economic Journal: Applied Economics*, 4(1), 164–192. Retrieved from <http://www.aeaweb.org/articles.php?doi=10.1257/app.4.1.164>
- Ghebru, H. H., Edeh, H., Ali, D., Deininger, K., Okumo, A., & Woldeyohannes, S. (2014). Tenure Security and Demand for Land Tenure Regularization in Nigeria: Empirical Evidence from Ondo and Kano States (Nigeria Strategy Support Program II Working Paper No. 25). Washington, DC. Retrieved from <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/128170/filename/128381.pdf>
- Ghebru, H., & Holden, S. T. (2015). Technical Efficiency and Productivity Differential Effects of Land Right Certification : A Quasi - Experimental Evidence. *Quarterly Journal of International Agriculture*, 54(1), 1–31.
- Gillespie, S., Menon, P., & Kennedy, A. L. (2015). Scaling Up Impact on Nutrition: What Will It Take ? *Advances in Nutrition*, 6, 440–451. <http://doi.org/10.3945/an.115.008276.were>
- Gilligan, D. O., Hidrobo, M., Hoddinott, J. F., Roy, S., & Schwab, B. (2014). Much ado about modalities: Multi country experiments on the effects of cash and food transfers on consumption patterns. Minneapolis, Minnesota: Selected Paper prepared for presentation at the Agricultural & Applied Economics Association's 2014 AAEA Annual Meeting.
- Gilligan, D. O., & Hoddinott, J. (2007). Is There Persistence in the Impact of Emergency Food Aid? Evidence on Consumption, Food Security, and Assets in Rural Ethiopia. *American Journal of Agricultural Economics*, 89 (2), 225–242. <http://doi.org/10.1111/j.1467-8276.2007.00992.x>
- Gilligan, D. O., Hoddinott, J., & a Seyoum Taffesse, A. (2009). The Impact of Ethiopia's Productive Safety Net Program and Its Linkages. *Journal of Development Studies* 45(10): 1684-1706.
- Gilligan, D. O., McNiven, S., Kumar, N., Meenakshi, J. V., & Quisumbing, A. (2013). Who Decides to Grow Orange Sweet Potatoes? Bargaining Power and Adoption of Biofortified Crops in Uganda. In A. R. Quisumbing, R. S. Meinzen-Dick, J. Njuki, & N. Johnson (Eds.), *Learning from eight agricultural development interventions in Africa and South Asia* (pp. 35–38). Washington, DC: International Food Policy Research Institute (IFPRI). Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127915>
- Gollin, D., Jedwab, R., & Vollrath, D. (2016). Urbanization with and without industrialization. *Journal of Economic Growth*, 21(1), 35–70. <http://doi.org/10.1007/s10887-015-9121-4>

- Haggblade, S., Hazell, P., & Brown, J. (1989). Farm-nonfarm linkages in rural sub-Saharan Africa. *World Development*, 17(8), 1173–1201. [http://doi.org/10.1016/0305-750X\(89\)90232-5](http://doi.org/10.1016/0305-750X(89)90232-5)
- Hagos, H. G. (2012). Tenure (in) security and agricultural investment of smallholder farmers in Mozambique (Mozambique Strategy Support Program, Working Paper No. 5). Washington, DC. Retrieved from <http://dlc.dlib.indiana.edu/dlc/handle/10535/8742>
- Hartmann, A., Kharas, H., Kohl, R., Linn, J., Massler, B., & Sourang, C. (2013). *Scaling Up Programs for the Rural Poor: IFAD's Experience, Lessons and Prospects (Phase II) (Global Working Paper No. 54)*. Washington, DC.
- Hartmann, A., & Linn, J. F. (2008). *Scaling Up. A Framework and lessons for Development Effectiveness from Literature and Practice*. Wolfensohn Center for Development Working Paper 5. Brookings Institution, Washington DC.
- Hayami, Y., & Ruttan, V. W. (1985). *Agricultural Development: An International Perspective*. Baltimore, MD: Johns Hopkins University Press.
- Hernandez, M. A., & Torero, M. (2014). Poverty-Sensitive Scorecards to Prioritize Lending and Grant Allocation with an Application in Central America. In D. Kohn (Ed.), *Finance for Food: Towards New Agricultural and Rural Finance* (pp. 263–283). Springer.
- Hernandez, M. A., & Torero, M. (2016). A poverty sensitive scorecard to prioritize lending and grant allocation: Evidence from Central America (IFPRI Discussion Paper No. Forthcoming). Washington, DC.
- Hidrobo, M., & Fernald, L. (2013). Cash transfers and domestic violence. *Journal of Health Economics*, 32(1), 304–19. <http://doi.org/10.1016/j.jhealeco.2012.11.002>
- Hidrobo, M., Hoddinott, J., Kumar, N., & Olivier, M. (2015). *Social protection, food security and asset formation*. Washington, DC.
- Hidrobo, M., Hoddinott, J., Peterman, A., Margolies, A., & Moreira, V. (2014). Cash, food, or vouchers? Evidence from a randomized experiment in northern Ecuador. *Journal of Development Economics*, 107, 144–156. <http://doi.org/10.1016/j.jdeveco.2013.11.009>
- Hidrobo, M., Peterman, A., & Heise, L. (2016). The effect of cash, vouchers and food transfers on intimate partner violence: Evidence from a randomized experiment in Northern Ecuador. *American Economic Journal: Applied Economics*.
- Hill, R. V., Hoddinott, J., & Kumar, N. (2013). Adoption of weather-index insurance: learning from willingness to pay among a panel of households in rural Ethiopia. *Agricultural Economics*, 44(4-5), 385–398. <http://doi.org/10.1111/agec.12023>
- Hill, R. V., Robles, M., & Ceballos, F. (2013). Demand for weather hedges in India: An empirical exploration of theoretical predictions (IFPRI Discussion Paper No. 01280). Washington, DC. Retrieved from www.agrodep.org/sites/default/files/weatherhedgesindia.pdf
- Hoddinott, J. (2008). *Social safety nets and productivity enhancing investments in agriculture*. Mimeo. Washington DC: International Food Policy Research Institute.
- Hoddinott, J., Berhane, G., Gilligan, D. O., Kumar, N., & Seyoum Taffesse, A. (2012). *The Impact of Ethiopia's Productive Safety Net Programme and Related Transfers on Agricultural Productivity*.

- Journal of African Economies , 21 (5), 761–786. <http://doi.org/10.1093/jae/ejs023>
- Hoddinott, J., Sandström, S., & Upton, J. (2014). The impact of cash and food transfers: Evidence from a randomized intervention in Niger. Mimeo. Washington DC: International Food Policy Research Institute.
- Hoel, J. B., Schwab, B., & Hoddinott, J. (2016). Self-control exertion and the expression of time preference: Experimental results from Ethiopia. *Journal of Economic Psychology*, 52, 136–146. <http://doi.org/10.1016/j.joep.2015.11.005>
- Holden, S., & Bezun, S. (2013). Joint Land Certification and Intra-household Decision-making: Towards Empowerment of Wives? (Centre for Land Tenure Studies Working paper No. 14/13).
- Holden, S. T., Otsuka, K., & Deininger, K. (Eds.). (2013). *Land Tenure Reform in Asia and Africa*. New York, NY: Palgrave MacMillan.
- Hurley, T. M., Rao, X., & Pardey, P. G. (2014). Re-examining the Reported Rates of Return to Food and Agricultural Research and Development. *American Journal of Agricultural Economics* . <http://doi.org/10.1093/ajae/aau047>
- ICARDA. (2014). Annual Report of the FGSF project, Social, Economic, and Policy Research Program. Amman, Jordan.
- Imbens, G. W., & Lemieux, T. (2007). Regression discontinuity designs: A guide to practice. *Journal of Econometrics*, 142(2), 615–635. <http://doi.org/10.1016/j.jeconom.2007.05.001>
- Jacob, R., Zhu, P., Somers, M.-A., & Bloom, H. (2012). A Practical Guide to Regression Discontinuity Acknowledgments. Retrieved from <http://www.mdrc.org/practical-guide-regression-discontinuity>
- Jacobs, K., & Kes, A. (2014). The Ambiguity of Joint Asset Ownership: Cautionary Tales From Uganda and South Africa. *Feminist Economics*, 21(3), 23–55.
- Jagger, P., Luckert, M. (Marty) K., Duchelle, A. E., Lund, J. F., & Sunderlin, W. D. (2014). Tenure and Forest Income: Observations from a Global Study on Forests and Poverty. *World Development*, 64, S43–S55. <http://doi.org/10.1016/j.worlddev.2014.03.004>
- Jayne, T. S., Anriquez, G., & Collier, E. (2013). African agriculture toward 2030: changes in urbanization and agricultural land dynamics and their implications for CGIAR.
- Jayne, T. S., Chamberlin, J., & Headey, D. (2014). Land pressures, the evolution of farming systems, and development strategies in Africa: A synthesis. *Food Policy*, 48, 1–17. <http://doi.org/10.1016/j.foodpol.2014.05.014>
- Johnson, N. L., Kovarik, C., Meinzen-Dick, R., Njuki, J., & Quisumbing, A. (2016). Gender, assets and agricultural development: Lessons from eight projects. *World Development*.
- Johnston, B. F., & Mellor, J. W. (1961). The Role of Agriculture in Economic Development. *The American Economic Review*, 51(4), 566–593.
- Jonasova, M., & Cooke, S. (2012). Thinking Systematically about Scaling Up: Developing Guidance for Scaling Up World Bank-supported Agriculture and Rural Development Operation. The Case of Competitive Grant Schemes for Agriculture Research and Extension. Agriculture and Rural Development Discussion Paper 53, International Bank for Reconstruction and Development / International Development Association. The World Bank, Washington DC.

- Kadiyala, M. D. M., Nedumaran, S., Singh, P., Chukka, S., Irshad, M. A., & Bantilan, M. C. S. (2015). An integrated crop model and GIS decision support system for assisting agronomic decision making under climate change. *The Science of the Total Environment*, 521-522, 123–34.
<http://doi.org/10.1016/j.scitotenv.2015.03.097>
- Karlan, D., Osei, R., Osei-Akoto, I., & Udry, C. (2014). Agricultural Decisions After Relaxing Credit and Risk Constraints. *Quarterly Journal of Economics*, 129(2), 597–652.
<http://doi.org/10.1093/qje/qju002.Advance>
- Khan, M. H. (1995). State Failure in Weak States: A Critique of New Institutional Explanations. In J. Harriss, J. Hunter, & C. Lewis (Eds.), *The New Institutional Economics and Third World Development* (pp. 71–86). London, UK: Routledge.
- Khandker, S. R., Koolwal, G. B., & Samad, H. A. (2010). *Handbook on Impact Evaluation: Quantitative Methods and Practices*. Learning. Washington, DC: The World Bank. <http://doi.org/10.1596/978-0-8213-8028-4>
- Kherallah, M., Camagni, M., & Baumgartner, P. (2015). Sustainable inclusion of smallholders in agricultural value chains (Scaling up note). Rome, Italy. Retrieved from http://www.ifad.org/knotes/valuechain/vc_sun.pdf
- Kieran, C., Sproule, K., Doss, C., Quisumbing, A., & Kim, S. M. (2015). Examining gender inequalities in land rights indicators in Asia. *Agricultural Economics*, 46(S1), 119–138.
<http://doi.org/10.1111/agec.12202>
- Kilic, T., Palacios-López, A., & Goldstein, M. (2015). Caught in a Productivity Trap: A Distributional Perspective on Gender Differences in Malawian Agriculture. *World Development*, 70, 416–463.
<http://doi.org/10.1016/j.worlddev.2014.06.017>
- Kleinwechter, U., Hareau, G., Bonierbale, M., Gastelo, M., & Harahagazwe, D. (2015). Ex Ante Evaluation of Improved Potato Varieties for Sub-Saharan Africa. In J. Low, M. Nyongesa, S. Quinn, & M. Parker (Eds.), *Potato and sweetpotato in Africa: transforming the value chains for food and nutrition security* (pp. 110–121). Wallington, Oxfordshire and Boston, MA: CAB International.
<http://doi.org/10.1079/9781780644202.0000>
- Kondylis, F., Mueller, V., & Zhu, S. J. (2014). Seeing is believing? Evidence from an extension network experiment (Policy Research Working Paper Series No. 7000). Washington, DC. Retrieved from <https://openknowledge.worldbank.org/handle/10986/19393>
- Korten, D. (1980). *Community Organization and Rural Development: A Learning Process Approach*. *Public Administration Review*, 40(5): 480-511.
- Korten, D. (1990). *Getting to the 21st Century, Voluntary Action and the Global Agenda*. West Hartford: Kumarian Press.
- Kumar, N., & Quisumbing, A. R. (2015). Policy Reform toward Gender Equality in Ethiopia: Little by Little the Egg Begins to Walk. *World Development*, 67, 406–423.
<http://doi.org/10.1016/j.worlddev.2014.10.029>
- Kuyvenhoven, A. (2014). *Impact Assessment of IFPRI's Capacity-Strengthening Work, 1985–2010* (Independent Impact Assessment Report No. 38). Washington, DC. Retrieved from

<http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128944>

- Lambert, D. M., & Pohlen, T. L. (2001). Supply Chain Metrics. *The International Journal of Logistics Management*, 12(1), 1–19. <http://doi.org/10.1108/09574090110806190>
- Lawry, S., Samii, C., Hall, R., Leopold, A., Hornby, D., & Mtero, F. (2014). The Impact of Land Property Rights Interventions on Investment and Agricultural Productivity in Developing Countries: a Systematic Review. *Campbell Systematic Reviews*, 10(1). Retrieved from <http://www.campbellcollaboration.org/lib/project/220/>
- Leimona, B., Lusiana, B., van Noordwijk, M., Mulyoutami, E., Ekadinata, A., & Amaruzaman, S. (2015). Boundary work: Knowledge co-production for negotiating payment for watershed services in Indonesia. *Ecosystem Services*, 15, 45–62. <http://doi.org/10.1016/j.ecoser.2015.07.002>
- Levy, B. (2014). *Working with the Grain: Integrating Governance and Growth in Development Strategies*. Oxford, UK: Oxford University Press.
- Linn, J. F. (2012). *Scaling up in Agriculture, Rural Development, and Nutrition*. (J. F. Linn, Ed.). Washington, DC: International Food Policy Research Institute (IFPRI).
- Lohman, C., Fortuin, L., & Wouters, M. (2004). Designing a performance measurement system: A case study. *European Journal of Operational Research*, 156(2), 267–286. [http://doi.org/10.1016/S0377-2217\(02\)00918-9](http://doi.org/10.1016/S0377-2217(02)00918-9)
- Losch, B., Fréguin-Gresh, S., & White, E. T. (2012). *Structural Transformation and Rural Change Revisited, Challenges for Late Developing Countries in a Globalizing World*. Washington, DC: The World Bank.
- Love, A., Magnan, N., & Colson, G. J. (2014). Male and Female Risk Preferences and Maize Technology Adoption in Kenya. Minneapolis, MN: Selected Paper prepared for presentation at the Agricultural & Applied Economics Association's. <http://doi.org/10.1017/CBO9781107415324.004>
- Lusk, J. L., & Briggeman, B. C. (2009). Food Values. *American Journal of Agricultural Economics*, 91 (1), 184–196. <http://doi.org/10.1111/j.1467-8276.2008.01175.x>
- Lynam, J., Beintema, N., Roseboom, J., & Badiane, O. (eds.) *Agricultural Research in Africa: Investing in Future Harvests*. International Food Policy Research Institute, Washington DC.
- Madrigal, L., & Torero, M. (2016). Using Quantitative Tools to Measure Gender Differences Within Value Chains. In A. Devaux, M. Torero, J. Donovan, & D. Horton (Eds.), *Innovation for Inclusive Value-Chain Development: Successes and Challenges*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Maertens, M., Minten, B., & Swinnen, J. (2009). Growth in high-value export markets in Sub-Saharan Africa and its development implications (LICOS Discussion Paper Series No. 245). Leuven, Belgium.
- Magnan, N., Spielman, D. J., Lybbert, T. J., & Gulati, K. (2015). Leveling with friends: Social networks and Indian farmers' demand for a technology with heterogeneous benefits. *Journal of Development Economics*, 116, 223–251. <http://doi.org/10.1016/j.jdeveco.2015.05.003>
- Malapit, H. J. L., Kadiyala, S., Quisumbing, A. R., Cunningham, K., & Tyagi, P. (2013). Women's Empowerment in Agriculture, Production Diversity, and Nutrition: Evidence from Nepal (IFPRI Discussion Paper No. 01313). Washington, DC. Retrieved from <http://papers.ssrn.com/abstract=2405710>

- Malapit, H. J. L., & Quisumbing, A. R. (2015). What dimensions of women's empowerment in agriculture matter for nutrition in Ghana? *Food Policy*, 52, 54–63.
<http://doi.org/10.1016/j.foodpol.2015.02.003>
- Malapit, H. J., Sproule, K., Kovarik, C., Meinzen-Dick, R., Quisumbing, A., Ramzan, F., ... Alkire, S. (2014). Measuring progress toward empowerment Women's Empowerment in Agriculture Index: Baseline Report. Ifpri.Org. Washington, DC. Retrieved from <http://www.ifpri.org/publication/measuring-progress-toward-empowerment?print>
- Margolies, A., & Hoddinott, J. (2014). Costing alternative transfer modalities. *Journal of Development Effectiveness*, 7(1), 1–16.
- Martin, W. (2016). Sectoral Productivity Growth and Poverty Reduction: National and Global Impacts (Forthcoming No. IFPRI Discussion Paper). Washington, DC.
- Masters, W. A. (2013). Urbanization and Farm Size in Developing Countries: Implications for Agricultural Research.
- Mccord, A., & Slater, R. (2009). Overview of Public Works Programmes in Sub-Saharan Africa. Overseas Development Institute. London, UK.
- McMillan, M., & Harttgen, K. (2015). Africa's Quiet Revolution. In C. Monga & J. Y. Lin (Eds.), *The Oxford Handbook of Africa and Economics Vol. 2: Policies and Practices*. Oxford, UK: Oxford University Press. <http://doi.org/10.1093/oxfordhb/9780199687107.013.003>
- McMillan, M., & Headey, D. (2014). Introduction – Understanding Structural Transformation in Africa. *World Development*, 63, 1–10. <http://doi.org/10.1016/j.worlddev.2014.02.007>
- McMillan, M., & Rodrik, D. (n.d.). "Overview: Structural Change, Fundamentals, and Growth." In M. McMillan, D. Rodrik, & C. Sepulveda (Eds.), *Structural Change, Fundamentals, and Growth*. Washington, DC: International Food Policy Research Institute (IFPRI).
- McMillan, M., Rodrik, D., & Verduzco-Gallo, Í. (2014). Globalization, Structural Change, and Productivity Growth, with an Update on Africa. *World Development*, 63, 11–32.
<http://doi.org/10.1016/j.worlddev.2013.10.012>
- Meinzen-Dick, R., Bernier, Q., & Haglund, E. (2013). The Six "INs" of Climate-Smart Agriculture: Inclusive Institutions for Information, Innovation, Investment, and Insurance (CAPRI Working Paper). Washington, DC.
- Meinzen-Dick, R., Chaturvedi, R., Domenech, L., Ghate, R., Janssen, M. A., Rollins, N., & Sandeep, K. (n.d.). Games for groundwater governance: Field experiments in Andhra Pradesh, India. *Ecology and Society*, Under review.
- Meinzen-Dick, R. S., Knox, A., Place, F., & Swallow, B. M. (Eds.). (2002). *Innovation in natural resource management: The role of property rights and collective action in developing countries*. Baltimore, MD: Johns Hopkins University Press and International Food Policy Research Institute.
- Mekonnen, D. K., Spielman, D. J., Fonsah, E. G., & Dorfman, J. H. (2015). Innovation systems and technical efficiency in developing-country agriculture. *Agricultural Economics*, 46(5), 689–702.
<http://doi.org/10.1111/agec.12164>
- Miller, C., & Jones, L. (2010). *Value Chain Finance. Tools and Lessons*. Warwickshire, UK: Food and

Agriculture Organization of the United Nations (FAO) and Practical Action Publishing.

- Minang, P. A., Noordwijk, M. Van, Freeman, O. E., Mbow, C., Leeuw, J. De, & Catacutan, D. (Eds.). (2014). *Climate-Smart Landscapes: Multifunctionality in Practice*. Nairobi, Kenya: The World Agroforestry Centre (ICRAF). Retrieved from <https://books.google.com/books?id=r11-BQAAQBAJ&pgis=1>
- Mogues, T. (2013). The Reach of Rural Services in Ethiopia: An Asset and Gender-Based Public Expenditure Benefit Incidence Analysis. *European Journal of Development Research*, 25(2), 230–251. <http://doi.org/10.1057/ejdr.2013.2>
- Mogues, T., & Benin, S. (Eds.). (2012). *Public Expenditures for Agricultural and Rural Development in Africa*. Abingdon, Oxford, UK and New York, NY: Routledge.
- Mogues, T., Fan, S., & Benin, S. (2015). Public Investments in and for Agriculture. *European Journal of Development Research*, 27(3), 337–352. <http://doi.org/10.1057/ejdr.2015.40>
- Mohr, L. B. (1999). The Qualitative Method of Impact Analysis. *American Journal of Evaluation*, 20 (1), 69–84. <http://doi.org/10.1177/109821409902000106>
- Msangi, S., Enahoro, D., Herrero, M., Magnan, N., Havlik, P., Notenbaert, A., & Nelgen, S. (2014). Integrating livestock feeds and production systems into agricultural multi-market models: The example of IMPACT. *Food Policy*, 49(P2), 365–377. <http://doi.org/10.1016/j.foodpol.2014.10.002>
- Mueller, V., Billings, L., Mogues, T., Peterman, A., & Wineman, A. (2015). Filling the Legal Void? Experimental Evidence from a Community-Based Legal Aid Program for Gender-Equal Land Rights in Tanzania (IFPRI Discussion Paper No. 01434). Washington, DC.
- Mueller, V., Kovarik, C., Sproule, K., & Quisumbing, A. R. (2015). Migration, gender, and farming systems in Asia: Evidence, data, and knowledge gaps (IFPRI Discussion Paper No. 01458). Washington, DC. Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129391>
- Murty, M. V. ., Li, T., Quick, W. P., Mohanty, S., Setiyono, T., & Wiebe, K. (2015). A spatial assessment of C4 Rice – a novel future rice technology to transform rice production in future climates in irrigated rice environments across South and Southeast Asia.
- Nelson, S., Frankenberger, T., Brown, V., Presnall, C., & Downen, J. (2015). Ex-Post Impact Assessment Review of Ifpri' S Research Program on Social Protection, 2000 – 2012 (Independent Impact Assessment Report No. 40). Washington, DC.
- Newman, C., Tarp, F., & van den Broeck, K. (2015). Property Rights and Productivity: The Case of Joint Land Titling in Vietnam. *Land Economics*, 91 (1), 91–105. <http://doi.org/10.3368/le.91.1.91>
- Nin-Pratt, A. (2015). Agricultural Intensification in Africa: A Regional Analysis (IFPRI Discussion Paper No. 01433).
- O'Sullivan, M., Rao, A., Raka, B., Gulati, K., & Vinez, M. (2014). *Levelling the field: Improving opportunities for women farmers in Africa*. Washington, DC: World Bank.
- Omamo, S. W. (1998). Transport Costs and Smallholder Cropping Choices: An Application to Siaya District, Kenya. *American Journal of Agricultural Economics*, 80(1), 116–123. Retrieved from <http://www.jstor.org/stable/3180274>
- Oseni, G., Corral, P., Goldstein, M., & Winters, P. (2015). Explaining gender differentials in agricultural production in Nigeria. *Agricultural Economics*, 46(3), 285–310. <http://doi.org/10.1111/agec.12166>

- Ostrom, E. (2010a). Beyond Markets and States: Polycentric Governance of Complex Economic Systems. *American Economic Review*, 100(3), 641–672. Retrieved from <http://www.aeaweb.org/articles.php?doi=10.1257/aer.100.3.641>
- Ostrom, E. (1990). *Governing the Commons: the Evolution of Institutions for Collective Action*. Cambridge University Press
- Ostrom, E. (2010b). Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change*, 20(4), 550–557. <http://doi.org/10.1016/j.gloenvcha.2010.07.004>
- Pacheco, P. (2012). Soybean and oil palm expansion in South America: A review of main trends and implications (Working Paper No. 90). Bogor, Indonesia.
- Palacios-Lopez, A., Christiaensen, L., & Kilic, T. (2015). How Much of the Labor in African Agriculture Is Provided by Women? (Policy Research Working Paper No. 7282). Washington, DC.
- Pandolfelli, L., Meinzen-Dick, R., & Dohrn, S. (2008). Gender and collective action: motivations, effectiveness and impact. *Journal of International Development*, 20(1), 1–11. <http://doi.org/10.1002/jid.1424>
- Parfitt, J., Barthel, M., & Macnaughton, S. (2010). Food waste within food supply chains: quantification and potential for change to 2050. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, 365(1554), 3065–3081. Retrieved from <http://rstb.royalsocietypublishing.org/content/365/1554/3065.abstract>
- Piñon, C., Catacutan, D., Leimona, B., Abasolo, E., & Tiongco, L. (2012). Conflict, Cooperation and Collective Action: Land Use, Water Rights, and Water Scarcity in Manupali Watershed, (CAPRI Working Paper No. 104). Washington, DC. Retrieved from <http://dx.doi.org/10.2499/CAPRIWP104>
- Poulton, C. (2014). Democratisation and the Political Incentives for Agricultural Policy in Africa. *Development Policy Review*, 32(S2), S101–S122. <http://doi.org/10.1111/dpr.12078>
- Quisumbing, A. R. (1996). Male-female differences in agricultural productivity: Methodological issues and empirical evidence. *World Development*, 24(10), 1579–1595. [http://doi.org/10.1016/0305-750X\(96\)00059-9](http://doi.org/10.1016/0305-750X(96)00059-9)
- Quisumbing, A. R., Kumar, N., & Behrman, J. (2011). Do Shocks Affect Men’s and Women’s Assets Differently? A Review of Literature and New Evidence from Bangladesh and Uganda. (IFPRI Discussion Paper No. 01113). IFPRI Discussion Paper. Washington, DC. Retrieved from <http://www.ifpri.org/publication/do-shocks-affect-men-s-and-women-s-assets-differently>
- Ragin, C. (2000). *Fuzzy-set Social Science*. Chicago, IL: University of Chicago Press.
- Ratner, B. D., Halpern, G., & Kosa, M. (2011). Catalyzing Collective Action to Address Conflict: Lessons from Cambodia’s Tonle Sap Lake (CAPRI Working Paper No. 103). Washington, DC. Retrieved from <https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/7828/capriwp103.pdf?sequence=1&isAllowed=y>
- Ratner, B. D., Mam, K., & Halpern, G. (2014). Collaborating for resilience: Conflict, collective action, and transformation on Cambodia’s Tonle Sap Lake. *Ecology and Society*, 19(3), 31. <http://doi.org/10.5751/ES-06400-190331>

- Ratner, B. D., Meinzen-Dick, R., May, C., & Haglund, E. (2013). Resource conflict, collective action, and resilience: An analytical framework. *International Journal of the Commons*, 7(1), 183–208. <http://doi.org/10.1007/s11068-013-9141-1>
- Ratner, B. D., & Smith, W. E. (2014). *Collaborating for Resilience : A Practitioner 's Guide*.
- Renkow, M., & Byerlee, D. (2010). The impacts of CGIAR research: A review of recent evidence. *Food Policy* 35, 391-402.
- Resnick, D. (2014). The political economy of food price policy in Senegal. In P. Pinstrip-Andersen (Ed.), *Food price policy in an era of market instability: A political economy analysis* (pp. 296–318). Oxford, UK: Oxford University Press.
- Resnick, D., Babu, S. C., Haggblade, S., Hendriks, S., & Mather, D. (2015). Conceptualizing drivers of policy change in agriculture, nutrition, and food security: The kaleidoscope model (IFPRI Discussion Paper No. 01414). Washington, DC. Retrieved from <http://ebrary.ifpri.org/utills/getfile/collection/p15738coll2/id/128953/filename/129164.pdf>
- Resnick, D., & Birner, R. (2010). Agricultural strategy development in West Africa: The false promise of participation? *Development Policy Review*, 28(1), 97–115. <http://doi.org/10.1111/j.1467-7679.2010.00476.x>
- Resnick, D., & Thurlow, J. (n.d.). *The Political Economy of Zambia's Recovery: Structural Change without Transformation*. In M. McMillan, D. Rodrik, & C. Sepulveda (Eds.), *Structural Change, Fundamentals, and Growth*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Ringler, C., Quisumbing, A. R., Bryan, E., & Meinzen-Dick, R. S. (Eds.). (2014). *Enhancing women's assets to manage risk under climate change: Potential for group-based approaches*. Washington, DC: International Food Policy Research Institute (IFPRI). Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128599>
- Rist, L., Feintrenie, L., & Levang, P. (2010). The livelihood impacts of oil palm: smallholders in Indonesia. *Biodiversity and Conservation*, 19(4), 1009–1024. Retrieved from <http://link.springer.com/article/10.1007/s10531-010-9815-z>
- Robinson, S., Mason d' Croz, D., Islam, S., Cenacchi, N., Creamer, B., Gueneau, A., ... Wiebe, K. D. (2015). *Climate Change Adaptation in Agriculture: Ex Ante Analysis of Promising and Alternative Crop Technologies Using DSSAT and IMPACT* (IFPRI Discussion Paper No. 01469). Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129694>
- Robinson, S., Mason d' Croz, D., Islam, S., Sulser, T. B., Robertson, R., Zhu, T., ... Rosegrant, M. W. (2015). *The International Model for Policy Analysis of Agricultural Commodities and Trade (IMPACT): Model description for version 3* (IFPRI Discussion Paper No. 01483). Retrieved from <http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/129825>
- Rosegrant, M., Magalhaes, E., Valmote-Santos, R. A., & Mason-D' Croz, D. (2015). *Returns to Investment in Reducing Postharvest Food Losses and Increasing Agricultural Productivity Growth*. Food Security and Nutrition Assessment Paper.
- Rosegrant, M. W., Koo, J., Cenacchi, N., Ringler, C., Robertson, R. D., Fisher, M., ... Sabbagh, P. (2014). *Food security in a world of natural resource scarcity: The role of agricultural technologies*. Washington, DC. Retrieved from <http://www.ifpri.org/sites/default/files/publications/oc76.pdf>

- Roy, S., Ara, J., Das, N., & Quisumbing, A. R. (2015). "Flypaper effects" in transfers targeted to women: Evidence from BRAC's "Targeting the Ultra Poor" program in Bangladesh. *Journal of Development Economics*, 117, 1–19. <http://doi.org/10.1016/j.jdeveco.2015.06.004>
- Ruel, M. T., & Alderman, H. (2013). Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*, 382(9891), 536–551. [http://doi.org/10.1016/S0140-6736\(13\)60843-0](http://doi.org/10.1016/S0140-6736(13)60843-0)
- Sadoulet, E., de Janvry, A., & Davis, B. (2001). Cash Transfer Programs with Income Multipliers: PROCAMPO in Mexico. *World Development*, 29(6), 1043–1056. [http://doi.org/10.1016/S0305-750X\(01\)00018-3](http://doi.org/10.1016/S0305-750X(01)00018-3)
- Saenger, C., Torero, M., & Qaim, M. (2014). Impact of Third-party Contract Enforcement in Agricultural Markets—A Field Experiment in Vietnam. *American Journal of Agricultural Economics*. <http://doi.org/10.1093/ajae/aau021>
- Sahn, D. E. (Ed.). (2015). *The Fight Against Hunger and Malnutrition: The Role of Food, Agriculture, and Targeted Policies*. Oxford, UK: Oxford University Press.
- Santos, F., Fletschner, D., Savath, V., & Peterman, A. (2014). Can Government-Allocated Land Contribute to Food Security? Intrahousehold Analysis of West Bengal's Microplot Allocation Program. *World Development*, 64, 860–872. <http://doi.org/10.1016/j.worlddev.2014.07.017>
- Schiffer, E., & Hauck, J. (2010). Net-Map: Collecting social network data and facilitating network learning through participatory influence network mapping. *Field Methods*, 22(3), 231–249. <http://fmx.sagepub.com/content/22/3/231.short>
- Schuster, M., & Torero, M. (2016). Food Loss and Waste. Raising Awareness and Setting Priorities. In 2016 Global Food Policy Report. Washington, DC: International Food Policy Research Institute (IFPRI).
- Scott, G., & Kleinwechter, U. (2015). Exploring future scenarios for food production, utilization, and marketing in Latin America: The case of potato to 2050. *Technological Forecasting and Social Change*, Under revision.
- Seville, D., Buxton, A., & Vorley, B. (2011). Under what conditions are value chains effective tools for pro-poor development? *World*. Retrieved from <http://pubs.iied.org/pdfs/16029IIED.pdf>
- Singh, I., Squire, L., & Strauss, J. (Eds.). (1986). *Agricultural household models : extensions, applications, and policy*. Baltimore, MD: Johns Hopkins University Press.
- Singh, P., Nedumaran, S., Ntare, B. R., Boote, K. J., Singh, N. P., Srinivas, K., & Bantilan, M. C. S. (2014). Potential benefits of drought and heat tolerance in groundnut for adaptation to climate change in India and West Africa. *Mitigation and Adaptation Strategies for Global Change*, 19(5), 509–529. <http://doi.org/10.1007/s11027-012-9446-7>
- Slavchevska, V. (2015). Gender differences in agricultural productivity: the case of Tanzania. *Agricultural Economics*, 46(3), 335–355. <http://doi.org/10.1111/agec.12168>
- Spielman, D. J., & Ma, X. (2015). Private Sector Incentives and the Diffusion of Agricultural Technology: Evidence from Developing Countries. *The Journal of Development Studies*, 0388(March), 1–22. <http://doi.org/10.1080/00220388.2015.1081171>

- Sproule, K., Kieran, C., Quisumbing, A., & Doss, C. (2015). *Gender, Headship, and the Life Cycle: Landownership in Four Asian Countries* (IFPRI Discussion Paper No. 01481). Washington, DC.
- Sraboni, E., Malapit, H. J., Quisumbing, A. R., & Ahmed, A. U. (2014). Women's Empowerment in Agriculture: What Role for Food Security in Bangladesh? *World Development*, 61, 11–52. <http://doi.org/10.1016/j.worlddev.2014.03.025>
- Stachowiak, S. (2013). *Pathways for Change: 10 Theories to Inform Advocacy and Policy Change Efforts*. Center for Evaluation Innovation, ORS Impact, Seattle, United States.
- Stoian, D., Donovan, J., Fisk, J., & Muldoon, M. (2016). Value-Chain Development for Rural Poverty Reduction: A Reality Check and a Warning. In A. Devaux, M. Torero, J. Donovan, & D. Horton (Eds.), *Innovation for Inclusive Value-Chain Development: Successes and Challenges*. Washington, DC: International Food Policy Research Institute (IFPRI).
- Sunderland, T., Achdiawan, R., Angelsen, A., Babigumira, R., Ickowitz, A., Paumgarten, F., ... Shively, G. (2014). Challenging Perceptions about Men, Women, and Forest Product Use: A Global Comparative Study. *World Development*, 64, S56–S66. <http://doi.org/10.1016/j.worlddev.2014.03.003>
- Swallow, B., Meinzen-Dick, R., Noordwijk, M. Van, Institute, I. F. P. R., Division, E. a N. D. P. T., van Noordwijk, M., ... Division, E. a N. D. P. T. (2005). *Localizing Demand and supply of Environmental Services: Interactions with Property Rights, Collective Action and the Welfare of the Poor* (CAPRI Working Paper No. 42). Washington, DC.
- Tadesse, A. G., de Brauw, A., Minot, N., & Bernard, T. (2015). The Impact of the Use of New Technologies on Farmers Wheat Yield in Ethiopia: Evidence from a Randomized Controlled Trial (IFPRI Discussion Paper No. 01462). Washington, DC.
- Tesfaye, K., Sika, G., Cairns, J. E., Shiferaw, B., Prasanna, B. M., Sonder, K., ... Robertson, R. (2015). Maize systems under climate change in sub-Saharan Africa: Potential impacts on production and food security. *International Journal of Climate Change Strategies and Management*, 7(3), 247 – 271. <http://doi.org/http://dx.doi.org/10.1108/IJCCSM-01-2014-0005>
- Thurlow, J. (2015). Youth employment prospects in Africa. In D. Resnick & J. Thurlow (Eds.), *Africa. In African youth and the persistence of marginalization: Employment, politics, and prospects for change* (pp. 23 – 46). London, UK and New York, NY: Routledge. Retrieved from <https://www.routledge.com/products/9781138829473>
- Timmer, C. P. (1988). The Agricultural Transformation. In H. Cheneo & T. N. Srinivasan (Eds.), *Handbook of Development Economics, Volume I* (pp. 276–331). Elsevier.
- Timmer, C. P. (2009). *A World without Agriculture: The Structural Transformation in Historical Perspective*. Washington, DC: The AEI Press. Retrieved from <http://www.aei.org/outlook/100036>
- Todd, J. E., Winters, P. C., & Hertz, T. (2010). Conditional Cash Transfers and Agricultural Production: Lessons from the Oportunidades Experience in Mexico. *Journal of Development Studies*, 46(1), 39–67. <http://doi.org/10.1080/00220380903197945>
- Torero, M. (2014). Targeting investments to link farmers to markets: a framework for capturing the heterogeneity of smallholder farmers. In P. B. R. Hazell & A. Rahman (Eds.), *New Directions for Smallholder Agriculture*. Oxford, UK: Oxford University Press. <http://doi.org/DOI:10.1093/acprof:oso/9780199689347.003.0006>

- Tversky, A., & Kahneman, D. (1992). Advances in prospect theory: Cumulative representation of uncertainty. *Journal of Risk and Uncertainty*, 5(4), 297–323.
- van de Walle, N. (1989). Rice Politics in Cameroon: State Commitment, Capability, and Urban Bias. *The Journal of Modern African Studies*, 27(4), 579–599. <http://doi.org/10.1017/S0022278X00020450>
- Villholth, K. G., Soodb, A., & Zhu, T. (2015). Groundwater in Global Food Security -- Role of Depleting Aquifers. Washington, DC: CGIAR Research Program on Policies, Institutions, and Markets (PIM).
- Vorley, B., Cotula, L., & Chan, M.-K. (2012). Tipping the Balance: Policies to shape agricultural investments and markets in favour of small-scale farmers. *Sustainable Urban Planning: Tipping the Balance*, (December). Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/9780470773703.ch6/summary>
- Walker, T., Alene, A., Ndjeunga, J., Labarta, R., Yigezu, Y., Diagne, A., ... Pandey, S. (2014). Measuring the Effectiveness of Crop Improvement Research in Sub-Saharan Africa from the Perspectives of Varietal Output, Adoption, and Change: 20 Crops, 30 Countries, and 1150 Cultivars in Farmers' Fields. Rome, Italy. Retrieved from <http://impact.cgiar.org/measuring-effectiveness-crop-improvement>
- Ward, P. S., Ortega, D. L., Spielman, D. J., & Singh, V. (2014). Heterogeneous demand for drought-tolerant rice: Evidence from Bihar, India. *World Development*, 64, 125–139. <http://doi.org/10.1016/j.worlddev.2014.05.017>
- Wiebe, K., Lotze-Campen, H., Sands, R., Tabeau5, A., van der Mensbrugghe, D., Biewald, A., ... Willenbockel, D. (2015). Climate change impacts on agriculture in 2050 under a range of plausible socioeconomic and emissions scenarios. *Environmental Research Letters*, 10(8), 85010. Retrieved from <http://stacks.iop.org/1748-9326/10/i=8/a=085010>
- Wolf, C. A., & Tonsor, G. T. (2013). Dairy farmer policy preferences. *Journal of Agricultural and Resource Economics*, 38(2), 220–234.
- Young, J. (2005). *Bridging Research and Policy: The RAPID approach*. London, UK.

3.11.3 How PIM’s Phase 2 full proposal addresses comments and recommendations on the pre-proposal received from the ISPC, the Fund Council, and the Consortium’s SPPC

This document includes:

- the main comments made by the ISPC on the PIM pre-proposal on September 28 (Section I),
- comments made by the ISPC on September 28 on other CRPs’ pre-proposals/platform EOIs that refer to PIM (Section II),
- comments made by the ISPC on October 14 on the overall portfolio that relate to PIM (Section III),
- comments made by the SPPC on October 19 on the overall portfolio that relate to PIM (Section IV),
- and caveats to the preparation of the full proposals included in Annex 1 of the December 19, 2015 full proposal guidance document that relate to PIM (Section V)

Section I – ISPC comments on the PIM pre-proposal

- Comments at program level

Comment	Response
Emphasize and outline a plan for engaging in a transparent and systematic exercise to establish priorities and achieve greater focus, with particular attention to PIM’s comparative advantage.	PIM management has carefully assessed PIM’s comparative advantage and taken into account recommendations from reviewers and the PIM evaluation to develop the proposed portfolio for Phase 2. We have justified the choice of topics within each flagship, and highlighted the topics that were covered in Phase 1 and dropped in Phase 2, with explanations (Sections 2.5 of flagship narratives). We have reviewed draft proposals from other CRPs to identify demand for input from and co-investment with PIM (Annex 3.7). We have gleaned early priorities from country and regional consultations in CGIAR countries of collaboration (Annex 3.7). The available information about large bilaterally/W3-funded projects was used to ensure leverage and complementarity between the different sources of funding within the portfolio.
Define optimal linkages across and within flagships; show more clearly and present a more coherent rationale for the flagship structure and the value of linkages between clusters within each flagship.	Section 1.6 addresses linkages within flagships, and the positioning of each flagship within the growth-sustainability-inclusion framework shown in Figure 1.6.2. The flagship narratives emphasize both the linkages with other flagships and the linkages between clusters of the flagship.
End or substantially reduce some legacy projects and further consolidate the portfolio.	Sections 2.5 in the flagship narratives explicitly note lines of work that are dropped in Phase 2, and explain the rationale for this choice.

Comment	Response
<p>Better articulate theories of change (ToC) at the CRP and flagship levels, and describe assumptions and risks within each Impact Pathway. PIM does not present an explicit ToC for the whole CRP. A ToC would provide a consistent overall structure, map out how FPs complement each other and thus help prioritize the FPs, placing the six FPs as the impact pathways to achievement of the overarching CRP outcomes (instead of the Global/ National/ Program/ Methods impact pathways provided). In the section that addresses PIM's impact pathways (pp. 11-12), there seems to be little or no emphasis on a support role within the CGIAR.</p>	<p>The generic theory of change for the program as a whole is described in Section 1.3. Gender, youth, capacity development, and climate change are addressed in this section. Table 1.3.1 includes a list of outcome-related risks and planned mitigation actions. The breadth of the agenda for policy and institutional reform prevents developing a more specific theory of change at program level. Sections 2.3 of the flagship narratives contain more specific ToCs at flagship level, including underlying assumptions. Table 1.3.1 shows how the flagship level outcomes contribute to the overall CRP outcomes. Section 1.6 describes the overall coherence of the program and the contribution of each flagship to its objectives. Section 1.3 emphasizes PIM's support role within CGIAR.</p>
<p>Reconsider topics missing from the policy agenda, e.g., related to input and output (especially seed) markets, farm size dynamics. There is hardly any reference to analysis of agricultural policies that have been widely debated in recent years, e.g., related to fertilizer subsidies, irrigation, seed systems and taxes. Subsidies are mentioned only a few times. There is virtually no discussion of seed system policies, food safety, water management or land degradation (although the latter two are implicit in FP5). It seems that some of the most basic areas of policy analysis have dropped off PIM's agenda – especially those having to do with input and output markets and the corresponding distortions.</p>	<p>Input and output markets are covered at a general level in the Flagship 3 narrative. Seed systems are given ample coverage in the Flagship 1 narrative (Cluster 1.2). Farm size dynamics will be a new area of focus for Flagship 2 in Phase 2, linking to previous PIM work on agricultural mechanization, youth employment, and the role of agriculture in structural transformation. Linkages with the work of Flagship 5 on land tenure are mentioned in the Flagship 2 narrative. Fertilizer subsidies have been fully covered in recent work, and additional research would not have much impact. Subsidies and taxes more generally are covered under the work on distortions in Flagship 3, and picked up at the country level in Flagship 2, particularly in work on the policy process and decisions related to public expenditure. PIM has elected not to invest heavily in irrigation policy (covered by WLE), food safety policy (covered by A4NH), and land degradation (covered by FTA and WLE). Some work on land degradation and water is undertaken in Flagship 5, with emphasis on institutional mechanisms for management of NRM, but technical dimensions of these agendas are understood to be within the competency of other CRPs.</p>
<p>Define more clearly PIM's linkages with other CRPs, through impact pathway schematics. While some information as to how PIM will work with other CRPs is provided under each FP, at the CRP level it is insufficient.</p>	<p>Discussions have been held with most CRPs to specify the topics for collaboration spelled out in Annex 3.7.</p>

Comment	Response
<p>More explicit reference to the grand challenges would be useful to see in the full proposal.</p>	<p>References to the SRF grand challenges are made in Section 1.1 and in the flagship narratives (Sections 2.1). Climate change receives specific coverage in Sections 2.8 of the flagship narratives. Post-harvest losses are addressed in the Flagship 3 narrative (Cluster 3.2). New entrepreneurial and job opportunities are addressed in Flagship 2 and Annex 3.5 on youth.</p>
<p>There are other PIM functions – such as data management and distribution – that fall outside the domain of any of its flagships. For example, there is no discussion of the management and dissemination of household survey data collected by PIM and its collaborators.</p>	<p>Data management is handled through procedures of the Participating Centers, and we have explained in Annex 3.9 that PIM will not establish separate (and possibly duplicative) procedures. Sections 2.11 of the flagship narratives address management of PIM data in accordance with the CGIAR guidelines on intellectual asset and open access management. It is the responsibility of the research teams to make data available; the Program Management Unit will contribute to dissemination to potential users as part of the PIM Communications Strategy.</p>
<p>The PIM full proposal would benefit markedly from more detailed references to work completed under Phase 1 and how Phase 2 builds on that previous effort.</p>	<p>These references can be found in Sections 2.5 of the flagship narratives and Annex 3.4.</p>
<p>There is no mention of youth at the CRP level, which may need to be addressed in the full proposal.</p>	<p>Youth at the CRP level is extensively covered in Section 1.5 and Annex 3.5 of the proposal.</p>

- **Comments on Flagship 1**

Comment	Response
<p>Does the foresight work belong in PIM? Some of these functions can be performed with more independence outside this CRP, and this FP seems duplicative of work already taking place or intended to take place elsewhere in the System.</p> <p>The IMPACT model, its assumptions, and its applications should be more transparent to potential users.</p>	<p>We believe that PIM is the best home for this work within CGIAR. Independence of the research from material interests of PIM is not an issue. This concern has been raised several times in the past, and we would welcome a discussion with ISPC to understand and address it.</p> <p>The new coordination model including the roles of PIM and other CRPs in the foresight modeling effort in Phase 2 is described in the Flagship 1 narrative and in Annex 3.7. The IMPACT model is more transparent than available alternative modeling systems. A user guide to the updated version of IMPACT was released end of 2015.</p>
<p>The work on technology adoption and impact assessment duplicates work in other CRPs. Technology adoption is an issue of obvious relevance to the CGIAR, although PIM’s comparative advantage in this area isn’t obvious. An alternative approach would be for PIM to play a minor supporting role with respect to other CRPs, rather than defining it as a CoA within PIM. On the adoption side, there are external entities such as ATAI and 3ie that are addressing many of the same questions about constraints to adoption with far more resources and rigor. It is not clear what role this cluster intends to perform, other than helping to develop a community of practice and enhancing internal coordination and quality—which would indeed be useful.</p>	<p>Following this advice, we have scaled back this part of the program’s agenda. PIM will support a community of practice focused on method development and learning. In addition, PIM will lead studies in areas where collaboration across CRPs and with SPIA is key, such as gender and technology adoption. 3ie and ATAI do not necessarily conduct research on CGIAR priority topics and countries of collaboration, which calls for a concerted effort to do so within CGIAR.</p>
<p>It is not always clear where the demand comes from (e.g., ASTI). A specific question arises with ASTI, which does not seem like an obvious component of the CGIAR research portfolio.</p>	<p>Statistics from the ASTI website and the ASTI ex post assessment study attest to the high demand for the ASTI data. These data are essential for understanding the capacity of our NARES partners, for tracking the relative contributions of CGIAR and partners to growth in total factor productivity, and for measuring returns to agricultural research. If our NARES partners are to improve their capacity, they need to have the comparative data on levels of investment (coupled with evidence on impact) to show their Ministries of Finance that additional budget allocations are required. This is a critical input to the various sub-IDOs related to capacity building, and perhaps the only indicator of changes in capacity that can be measured with existing data.</p>

Comment	Response
<p>Gender issues are not addressed in depth in this flagship.</p>	<p>ASTI data on scientists employed within the NARS at various levels are age- and sex-disaggregated, and thus amenable to analysis of issues related to gender and youth. Flagship 1 research takes into account (a) gender considerations in the selection of technologies, policies and investments for foresight analysis, and the potential for gender dynamics to influence drivers of change in agriculture and food systems, (b) links to other models (including country-level CGE models with household data, where sex-disaggregated data are available) to analyze impacts of selected scenarios on employment and other variables, (c) potential gender implications of the results of selected scenarios through links to existing gender-focused research, (d) a strong gender lens on the analysis of access and provision issues in agricultural extension systems, (e) gender dimensions of technology adoption trends, determinants, and impacts, particularly with respect to seed systems and markets, and (f) the role of men, women, and various age cohorts in the conduct of science in agricultural research organizations. See Section 2.9 of the Flagship 1 narrative and Annex 3.4.</p>

- **Comments on Flagship 2**

Comment	Response
<p>How do CSSPs fit into PIM’s research agenda? It is disturbing to see that there does not seem to be much attempt to build strategically on questions and issues that arise in the CSSPs. If there is no feedback from the CSSPs into the program, then they should probably be moved to another institutional location.</p>	<p>Integration between PIM and the IFPRI CSSPs is addressed in the Flagship 2 narrative, especially for the CGIAR countries of collaboration where a CSSP is active (Bangladesh, Ethiopia, Ghana, Malawi, and Nigeria).</p>
<p>This flagship seems to have a research agenda that is distinct from what the rest of the CRPs are doing, yet it deals with issues that arise in almost every one of the AFS CRPs. This flagship needs to reach out more to other CRPs. To the extent that collaboration is discussed, it is envisioned as a one-way flow, with no real sense that PIM hopes to learn from other CRPs or to define its research questions in relation to issues arising in the field. Indeed, the text of the document says at this point, “... [A] number of AFS CRPs have expressed intent to examine rural-urban linkages. PIM encourages these CRPs to explore tools available within PIM, especially the country-specific SAMs and CGE models, before they invest in alternatives.” This does not come across as a serious effort to engage in mutually beneficial collaborative work.</p>	<p>Relevance to the AFS CRPs has informed the choice of topics to be addressed by Flagship 2 in Phase 2. Linkages between Flagship 2 and the other CRPs will be much more developed in Phase 2 than in Phase 1, and are described in the Flagship 2 narrative.</p>

Comment	Response
A number of key issues around inclusive growth seem to be absent: issues around farm size and land distribution, remoteness and the economics of investment in marginal areas, inclusiveness of employment in large-scale farming and agri-processing, and contract farming and its ability to meet the livelihood needs of smallholders. It is not clear that the omission of these issues reflects a strategic choice, i.e., relevance for the CGIAR, as opposed to an agenda based on funding opportunities or current expertise inside PIM.	<p>Issues of land distribution and farm size are covered in Flagship 2 and Flagship 5. Intersectoral labor flows and employment through mixed livelihoods are addressed in Flagship 2. Employment along the value chain is addressed in Flagship 3.</p> <p>Issues associated with inclusive growth that both attract bilateral funding and draw on staff capacity receive preferential treatment in Flagship 2, which is consistent with comparative advantage and the constrained funding environment.</p>
The full proposal should flesh out how the first cluster will cover the landscape more strategically. Currently, this flagship agenda seems poorly developed, lumping together without explanation a wide range of topics.	The coherence and presentation of Cluster 2.1 has been improved (see Flagship 2 narrative).
In the case of the first cluster, it is surprising that there is so little information on the proposed methods.	Methods used in all three clusters of Flagship 2 are described in Section 2.4 of Flagship 2.
For the second cluster, there are some reservations about the use of SAM/CGE approaches to thinking about the prioritization of public investments. The results of this analysis will be heavily dependent on the assumptions that are made.	Scientific discourse accommodates differing views about the relevant methodologies. Public investments are decided through various policy processes, and the analysis using SAM/CGE models is but one input. SAM/CGE tools are designed to explore options (for investment inter alia), and how they are affected by different underlying assumptions. The availability of micro-level data has dramatically improved in recent years; thus the parameters to be used in the SAM/CGE modeling will increasingly come from micro-level empirical analyses. Some of the assumptions can also be relaxed through scenario analyses and simulations with alternative assumptions; e.g., about substitutability of factors.

Comment	Response
<p>The comparative advantage of PIM with respect to compiling SPEED indicators on national government spending is not clear. Work on prioritizing public investment veers somewhat close to consulting work. It would make more sense to focus on developing the tools for this analysis and then making them available to other organizations for implementation in specific countries.</p>	<p>The SPEED data are made available to a wide array of users for applications. Downloads from the SPEED website attest to the high demand for the data (Section 2.10 of the Flagship 2 narrative). Making data and tools available to national partners for use in policy analysis is a priority, and capacity strengthening is a key component of Cluster 2.1 and Flagship 2 in general.</p>
<p>There are many other providers of analysis on employment issues in developing countries, especially when it comes to impact evaluation of different employment interventions, infrastructure investments, job training, etc. such as J-PAL, 3ie, the World Bank, and many university-based researchers. If this is the focus of the cluster, PIM should explain its comparative advantage in the full proposal.</p>	<p>The inclusion in the CGIAR SRF of IDO 1.3 on Increased incomes and employment presumably carries the assumption that CGIAR will undertake research on this topic. The focus of PIM is on rural livelihoods, and how agriculture contributes to them, with special emphasis on youth employment (Section 1.5 and Annex 3.5), and intersectoral flows of labor with structural and rural transformation (Flagship 2 narrative). We do not focus on employment more generally.</p> <p>We are not in agreement with the statement that youth employment interventions have been extensively evaluated (although we do not intend to make this a major focus of PIM). The 2012 report of the World Bank’s Independent Evaluation Group on youth employment programs emphasizes the dearth of rigorous analytical assessment of the performance of such programs.</p>
<p>There is surprisingly little about gender in this flagship on “inclusive growth”.</p>	<p>Gender dimensions have been heightened (See Section 2.9 of the Flagship 2 narrative and Annex 3.4).</p>

- **Comments on Flagship 3**

Comment	Response
<p>The ISPC sees deficiencies in how the clusters are presented. A stronger rationale is needed in the full proposal.</p>	<p>We hope that the rationale for and presentation of Flagship 3 is improved in the full proposal.</p>
<p>This flagship seems to have a research agenda that is distinct from what the rest of the CRPs are doing, yet it deals with issues that arise in almost every one of the AFS CRPs. To make this a more viable activity for the CGIAR, PIM must seriously engage with other CRP social scientists in collaborative research on value chains and the corresponding small and medium enterprise sector. Value chain analysis elsewhere in the CGIAR is focused on understanding the opportunities for value addition to increase the incomes and well-being of women and the poor. As presented, there is little here to support those CRPs that are primarily focused on domestic value chains. In spite of that, the pre-proposal seeks US \$20 million annually. One could imagine a budget that is perhaps a small percentage of that, but the current allocation seems excessive.</p>	<p>The evaluation of PIM pointed out that PIM has developed a multi-center community of practice for value chain research, with strong linkages to other CRPs. Discussions have been held with all CRPs to provide more details on cross-CRP collaboration on value chains in the full proposal (see Annex 3.7).</p> <p>Most of the outputs of the work – tools and results – posted on the PIM value chains web site pertain to domestic value chains, and specifically to inclusion of women and poor producers. One key investment in Phase 1 was to develop tools that better address the gender dimensions of value chains. These products will be used by other CRPs in Phase 2. It seems that the text of the pre-proposal failed to convey this; we have tried to improve this in the proposal. See Flagship 3 narrative and Annex 3.7.</p>
<p>The science quality for the first cluster is moderate. To some extent it seems to draw on an old and problematic method for defining implicit taxation of producers. This method tends to conflate transport and transaction costs and quality differences with actual policy distortions, whereas the literature in more recent years has grown less confident in the notion that the Law of One Price should hold in all cases.</p>	<p>When price gaps (i.e., rejection of the law of one price) are large in developing countries, it is often not easy to see how much is contributed by traditional policy distortions, and how much by investment lacunae and market imperfections. The recent PIM work on implicit taxation does not assume that all gaps are due to policy distortions; rather the measurement exercise allows policy makers to zero in on the markets and value chains where the problems are greatest. The purpose of the research is precisely to diagnose what is causing the large price gap, and what interventions would reduce it most cost-effectively. This work is very important to help colleagues in the AFS CRPs see the factors depressing incentives for adoption of superior technologies developed within the AFS CRPs.</p>

Comment	Response
<p>Trade: There is arguably less interest in this topic today than previously, since discussions of agricultural trade now have an institutional home in the WTO (which was not true during the peak era of this activity).</p>	<p>Work on international trade is highly relevant, particularly in addressing price volatility and the benefits of CGIAR’s investment to consumers (who may be a hemisphere away from the producers). ISPC has regularly questioned the relevance of PIM’s work on international trade. We hope that in this proposal we have succeeded in showing its relevance to the PIM agenda and to CGIAR more broadly.</p> <p>The WTO addresses international trade, but the representatives of developing countries in the WTO are very weak on agricultural issues. IFPRI and PIM have an established record of assistance and capacity building in this area.</p> <p>It should be noted that other CRPs are upon occasion asked to assist clients and partners on agricultural trade issues, and do not have the tools to do so. For instance, AfricaRice recently approached PIM with regard to a request from ECOWAS on tariff policy for rice. In addition, PIM is using the tools of analysis of distortions developed for trade negotiations to diagnose breakdowns in domestic value chains, so that interventions can be steered toward the breakdowns that are most costly. Much of the work within the trade cluster has very clear domestic applications relevant to smallholders and poor consumers, as well as regional and global applications.</p> <p>We hope that the new presentation of Cluster 3.1 (Flagship 3 narrative, especially Sections 2.1, 2.2, 2.3, 2.6, and 2.8) makes a strong case for including trade in PIM in Phase 2.</p>
<p>The third cluster seeks to identify “best-bet options for scaling innovations.” This too is vague and hard to assess, but seems to verge very close to development implementation. There is not enough information to judge it effectively. It is not possible to assess the quality of the science in CoA3 since the methods are unclear.</p>	<p>We have revised accordingly in the full proposal.</p>
<p>Gender receives very little attention.</p>	<p>A significant amount of gender work has in fact been done in Flagship 3, and will continue in Phase 2. This is reflected in the full proposal (section 2.9 of the Flagship 3 narrative, and Annex 3.4).</p>
<p>Capacity building receives very little attention.</p>	<p>See Section 2.10 of the Flagship 3 narrative, which gives detailed information about two capacity development examples: value chains hubs, and AGRODEP.</p>

- **Comments on Flagship 4**

Comment	Response
<p>It is not clear that this subject area forms an obvious element of the CRP portfolio or indeed of the broader CGIAR portfolio. Social protection schemes are undoubtedly important for reducing poverty, but they do not have an obvious link to agricultural science or agricultural research. Comparative advantage of the CGIAR is at issue here. The pre-proposal does present a compelling case based on past work and current expertise, but there are now many other providers of this work, including university-based researchers and other development organizations. This is particularly true of the work on financial inclusion, which is a huge area of research outside the CGIAR. One might be more sympathetic to this work if the FP were able better to connect it to issues of more central concern to the CGIAR, such as technology choice and input use; or rural-urban population movements; or food demand and consumption patterns; or nutrition.</p>	<p>The recommendation of the ISPC to link PIM’s social protection work with agricultural interventions has been followed, and this new orientation is described in the Flagship 4 narrative. Comparative advantage and relevance to CGIAR are elaborated in Section 2.7 of the Flagship 4 narrative.</p>
<p>A topic that may deserve more attention here is the extent to which social protection strategies allow for better uptake of technology by poor farmers or easier out-migration. This is mentioned in the section introduction but not given further attention.</p>	<p>See Sections 2.2, 2.6, and 2.8 of the Flagship 4 narrative, which address this topic.</p>
<p>More effort is needed in developing a more thoughtful capacity strengthening strategy.</p>	<p>See Section 2.10 of the Flagship 4 narrative and Annex 3.3.</p>

Section II – ISPC comments on other CRPs’ pre-proposals and platform EOIs and that refer to PIM

CRP	Comment	Response
Livestock	Whilst the integration with other CRPs is mentioned and presented in an annex, further detail, particularly with respect to the functional integration with A4NH and PIM , is required.	See Annex 3.7.
Fish	<p>Moreover, it would be helpful to see how the research on institutions and policies proposed in Flagship 2 on Sustaining fish production systems would intersect with similar work in PIM (especially on the governance of common resources) and perhaps other CRPs.</p> <p>Flagship 3 on Fish value chains and nutrition: The rationale behind combining the value chains with the nutrition work requires further elucidation, as does the much-needed inter-CRP collaborations with PIM, A4NH, and perhaps other CRPs in this area.</p>	Noted for follow-up. Worldfish is an important contributor to PIM’s Flagship 5.
DCLAS	<p>Flagship 1 on Priority Setting and Impact Acceleration: Generic statements about comparative advantage are given based on having ‘critical mass’ rather than showing professional expertise and profile available and noting areas in which skills will be sought through new partnerships. There would certainly be some advantages to working with IFPRI/PIM on this work, as well as with some external teams.</p> <p>Flagship 4 on Seed Systems and Input Services: For this and other issues cited above, the ISPC believes that this work should be merged with other CRP FPs dealing with seed systems. This might result in a single FP, possibly within PIM.</p>	See Annex 3.7, which includes joint work between PIM and DCL on seed systems and foresight, among other topics.
FTA	Flagship 5 on Sustainable Global Value Chains and Investments for Supporting Forest Conservation and Equitable Development: FTA should also examine if it has sufficient finance and business modelling expertise to produce IPGs in CoAs 5.2 and 5.3 (is this vis-à-vis collaboration with PIM ?).	Linkages between PIM and FTA are elaborated in the Flagship 5 narrative and in Annex 3.7.

CRP	Comment	Response
A4NH	<p>There is some overlap in the objectives of A4NH and PIM, as much of the nutrition and health agenda operates through policies, institutions and markets. It would be helpful to be more explicit about the allocation of responsibilities and scientific specialization between these CRPs, in terms of which kinds of data, methods and research outputs each aims to produce.</p> <p>Further, the ISPC would have expected to see strong links with PIM regarding the intention to mainstream biofortification into policy. The ISPC would encourage more discussion of interaction around value chains with PIM and other CRPs.</p> <p>Flagship 5 on Integrated programs to improve nutrition would also do well to provide input to the other FPs, for example Biofortification, Food Safety, and to the policy-oriented FPs and PIM.</p>	<p>PIM does very little explicitly on nutrition policy. In the interest of selectivity we prefer not to expand this work. A4NH has the technical expertise to address regulatory issues associated with biofortification.</p> <p>Linkages and the division of labor between PIM and A4NH are elaborated in Annex 3.7 and in the narratives of Flagships 4 and 6.</p>
Gender platform	<p>The ISPC notes the overlap in objectives and personnel with the 2nd cluster of activities in FP 6 of PIM. The ISPC considers there needs to be a strong case (added value over what already exists) to justify the creation of a new platform and considers that the case has not been made by the EoI proponents as to why the activities described in the expression of interest need to be implemented by a separate gender platform. The ISPC recommends that the functions proposed in the EoI which are complementary to those proposed in PIM Flagship project 6 are folded into the full proposal for the PIM CRP.</p>	<p>Based on guidance received from the Consortium Office and ISPC on February 18, 2016, the Gender Platform is now included as Cluster 6.2 in Flagship 6 (See Flagship 6 narrative section).</p>

Section III – ISPC comments on the overall CRP portfolio that are related to PIM

Comment	Response
There are numerous activities on foresight and prioritization at a range of levels within the CGIAR System without a common framework to capture synergies and avoid duplication.	See Section I of this document.
Impact assessment, particularly <i>ex-post</i> , is still generally under-budgeted across the CGIAR System, and seldom referred to in the CRP pre-proposals. The ISPC is concerned that there is still too much reliance on the work undertaken by SPIA. As the Portfolio as a whole becomes more integrated it would be good to see a strategy for how this could be co-ordinated across the System at the time of submission of full proposals.	PIM's plans for impact assessment are described in Annex 3.6 on Results Based Management.

Section IV – SPPC comments on the overall CRP portfolio that are related to PIM

Comment	Response
CRP7 Policies and Markets – in which the current PIM program is re-articulated to contribute to CGIAR horizon scanning and to enabling policy frameworks for output delivery and human welfare benefits in CGIAR target countries.	While we do indeed plan to orient significant investment into countries of CGIAR collaboration, we also will maintain research that informs regional and global policy decisions, as well as some national level research outside of countries of CGIAR collaboration. See Sections 1.1 and 1.3 of the program-level narrative, and Annex 3.7.
To include 6 Flagships as per the pre-proposal with appropriate revisions as recommended by ISPC, and also to incorporate the Gender expression of interest.	See previous sections of this document.

Section V – Caveats to preparation of full proposals that are related to PIM

Comment	Response
<p>Greater attention to discerning the role of regionally focused yield-gap closing/sustainable intensification research in the system, as distinct from and a complement to global public goods research in areas such as crop breeding, livestock health, food policy, and others.</p>	<p>As described in Sections 2.2, 2.6, and 2.8 of the Flagship 1 narrative, Flagship 1 makes a strong contribution to Sub-IDO 1.4.2 ‘Closed yield gaps through improved agronomic and animal husbandry practices’.</p>
<p>Crosschecking that consolidation at the cluster of activities or flagship level has not delivered unintended adverse consequences such as removing clarity for key research priorities and/or increasing transaction costs.</p>	<p>Two PIM clusters have been merged between the pre-proposal and proposal stages: former Cluster 1.2 on “Agricultural Science and Technology, Genetic Resources, and Innovation” and former Cluster 1.3 on “Enabling Adoption of Technology” are now part of the reconfigured Cluster 1.2 “Science Policy and Technology Systems for Sustainable Intensification”. This consolidation is in line with the questions previously raised by the ISPC about the need for a separate cluster on technology adoption. It is also consistent with the expansion in Phase 2 of the work on seed systems, which overlapped the two former clusters. The merger will result in an efficiency gain, and no loss of priority topics has been identified.</p>
<p>Providing a clearer understanding of National Partners’ requirements, and how the scientific and financial program elements support them.</p>	<p>Partnerships with national partners are featured throughout the proposal. Flagship 2 is devoted almost exclusively to work at the country level in response to demand from national partners. See also Annex 3.2 and PIM’s Communications Strategy.</p>
<p>Setting out more clearly the interconnection and resources available for the proposed Communities of Practice in gender/youth and capacity development, with particular attention to ensuring engagement of partners in the respective Communities of Practice. Specifically, ensuring that the proposed communities of practice operate in a way that will result in meaningful progress towards sustainable engagement and impact.</p>	<p>Based on guidance received from the Consortium Office and ISPC on February 18, 2016, the Gender Platform is now included as Cluster 6.2 in Flagship 6 (See Flagship 6 narrative section).</p>
<p>Reducing as many transaction costs as possible, particularly regarding management burden.</p>	<p>As described in Section 1.12, a lean Program Management Unit will continue to handle operational and administrative aspects of the program. As much as possible processes and tools will be common to several CRPs (the monitoring and evaluation tool common with CCAFS, WLE, and A4NH is a good example of economies of scale). PIM management costs are estimated at 3.5% of the total budget, which is at the lower end of the usual range for such programs.</p>

Comment	Response
<p>Seek explicit prioritization within CRPs (and also between CRPs); balancing research on ‘upstream’ science with research on how to scale out and up relevant new knowledge and technologies (while leaving the delivery of impact at scale to organizations with that remit).</p>	<p>PIM has clarified its contribution in relation to scaling up value chains interventions in Flagship 3: PIM does not intend to engage in scaling activities; these activities are the domain of key public and private development partners with a clear remit for value chain intervention. Rather, PIM, in collaboration with AFS CRPs and other partners, will conduct rigorous research to identify scaling typologies, to develop methods for evaluating interventions operating at scale, and to document results of what works, where, for whom, and under what conditions. See the Flagship 3 narrative for more details.</p>
<p>Important to capture synergies between CRPs so that the System delivers more than the sum of the CRPs (the One System One Portfolio mantra).</p>	<p>Discussions have been held with most CRPs to specify the topics for collaboration spelled out in Annex 3.7.</p>
<p>Clearer explanations of what W1&2 funding will be used for.</p>	<p>Principles for the use of W1-2 funding are provided in the program level budget narrative (Section 5).</p>
<p>The ISPC is glad that PIM has agreed to take on the role of co-ordination of a Systemwide platform or Community of Practice for gender work, although we hope that it will be possible to reinstate the original budget. It is hoped that down-rating gender Final 2nd Call Full Proposal Guidance from a Flagship to ‘Cross-cutting work’ does not reflect diminishing importance of gender.</p>	<p>Based on guidance received from the Consortium Office and ISPC on February 18, 2016, the Gender Platform is now included as Cluster 6.2 in Flagship 6 (See Flagship 6 narrative section).</p>

3.11.4 PIM's communications strategy

The CGIAR Research Program on Policies, Institutions, and Markets (PIM) leads action-oriented research to equip decision makers with the evidence required to develop food and agricultural policies that better serve the interests of poor producers and consumers, both men and women. Regular and efficient communication to support the work of PIM's researchers and partners and to share results of this work is critical to achieving this goal. This document outlines PIM's Communications Strategy.

Objectives

The overarching objectives of this strategy and of the PIM communications function are to **support PIM in achieving impact through the program's channels of influence** and to **facilitate efficient delivery of the program**.

Specifically, PIM's communications seeks to

- convey research results to raise awareness about the role of good policies, strong institutions, and well-functioning markets in achieving poverty reduction, improved nutrition and health, and good stewardship of natural resources,
- inform global and national policy processes,
- share knowledge and support learning among PIM collaborators, partners, and beyond,
- share best practices and lessons learned within CGIAR to support joint learning and cross-CGIAR collaboration,
- demonstrate accountability to donors and partners,
- help secure funding for realization of the program's agenda,
- inform collaborators and partners on program developments,
- provide opportunities for feedback on the program as part of the continuous monitoring and learning plan,
- support implementation of the PIM partnership and capacity building strategies.

Principles of work

PIM communications efforts are guided by the following principles:

- **Accuracy:** PIM communications products are based on rigorous research and accurate information.
- **Collaboration for targeted communications:** Creation and sharing of knowledge is a joint effort of all PIM collaborators. Researchers and communicators work together and with PIM partners to synthesize research results and craft tailored messages and communications products that are clear, interesting, and useful for different target groups.
- **Open access:** Outputs of PIM research are international public goods (see Annex 3.9), and PIM facilitates access to its knowledge products to all interested parties.

Alignment with PIM's channels of influence, target audiences, and communications tools

Table 3.11.4.1 summarizes key target groups within each of the channels of influence described in PIM's theory of change (Section 1.0.3), and provides examples of communication tools to deliver relevant knowledge.

Table 3.11.4.1: Examples of communication tools and activities in support of PIM's channels of influence

Channel of influence	Target audiences	Target audience interests (examples)	Type of knowledge	Communication tools
Contribution to global agenda setting	<ul style="list-style-type: none"> ▪ Policy makers and opinion leaders at the international level ▪ International development organizations 	<ul style="list-style-type: none"> ▪ Analytical support for participation in global processes ▪ Support in strategy development 	<ul style="list-style-type: none"> ▪ Research results and syntheses 	<ul style="list-style-type: none"> ▪ Convening of and participating in high-level international events ▪ Policy reports and briefs and their launch events ▪ Presentations ▪ Websites, blogs, -newsletters ▪ Media coverage
Support to national and regional policy making	<ul style="list-style-type: none"> ▪ Policy makers and opinion leaders at the regional/national levels ▪ National agencies responsible for agricultural and food security strategies ▪ National research institutes 	<ul style="list-style-type: none"> ▪ Strategic advice on creation and implementation of national agricultural policies and programs ▪ Analysis of existing policies ▪ Assistance in international negotiations 	<ul style="list-style-type: none"> ▪ Research results and syntheses ▪ Analytical tools and data sets ▪ Information about ongoing research projects 	<ul style="list-style-type: none"> ▪ Face-to-face meetings ▪ Targeted publications (for example, policy reports and briefs for decision makers, technical guides and manuals for researchers); presentation events for the above ▪ Websites, blogs, newsletters ▪ Engagement at national policy events, meetings ▪ Journal articles ▪ Working/discussion papers ▪ Training workshops (for researchers)
Design of local programs; innovations in markets and institutions	<ul style="list-style-type: none"> ▪ Private sector ▪ Boundary partners (such as farmers' organizations, rural communities of practice, rural advisory services organizations, local NGOs) 	<ul style="list-style-type: none"> ▪ Innovations to improve value chains and in contracting ▪ Delivery mechanisms for safety nets ▪ Improved arrangements for natural resource tenure and governance 	<ul style="list-style-type: none"> ▪ Research results and syntheses ▪ Business models ▪ Best practices and tools 	<ul style="list-style-type: none"> ▪ Presentations of research results with focus on application in specific context, tailored for a specific user (agency or company) ▪ Feedback from users of tools and methods ▪ Websites or dedicated sections on a website (for example http://private.tools4valuechains.org/) ▪ Technical guides and manuals ▪ Training workshops

Impact pathway	Target audiences	Target audience interests (examples)	Type of knowledge	Communication tools
Capacity building	<ul style="list-style-type: none"> ▪ Research community in general (CGIAR and beyond, including national research institutes, universities, research networks) 	<ul style="list-style-type: none"> ▪ Research findings ▪ Models and tools and how to use them ▪ Training, internship, and collaboration opportunities ▪ Information about events 	<ul style="list-style-type: none"> ▪ Research results and syntheses ▪ Information about ongoing research projects ▪ Analytical tools and data sets 	<ul style="list-style-type: none"> ▪ Training workshops ▪ National and international research conferences ▪ Journal articles ▪ Technical guides and manuals ▪ Interactive web-tools ▪ Websites, blogs, newsletters, social media (to support dissemination)
All above	<ul style="list-style-type: none"> ▪ Implementing partners (CGIAR Centers, NGOs, state agencies—including those who are currently not engaged in PIM) 	<ul style="list-style-type: none"> ▪ Research results in a form ready to use in communications with on-the-ground partners ▪ Tools to support program implementation (monitoring, evaluation, adjustment) 	<ul style="list-style-type: none"> ▪ Research results and syntheses ▪ Analytical tools ▪ Ongoing research ▪ Program updates and highlights ▪ Collaboration opportunities 	<ul style="list-style-type: none"> ▪ Face-to-face meetings ▪ Program reports and brochures ▪ Websites, blogs, newsletters ▪ Presentations
	<ul style="list-style-type: none"> ▪ Donors 	<ul style="list-style-type: none"> ▪ Evidence that funds are spent efficiently and that the ROI in PIM is competitive ▪ Examples of tangible and measurable impact to justify decisions about future grants ▪ Donor brand promotion 		<ul style="list-style-type: none"> ▪ Face-to-face meetings ▪ Donor reports ▪ Program reports and brochures ▪ Websites, blogs, newsletters ▪ Media coverage, social media ▪ Presentations (tailored to donors' interests)
	<ul style="list-style-type: none"> ▪ Media (considered here not as a means to disseminate information but as opinion influencers and change agents) 	<ul style="list-style-type: none"> ▪ In addition to the newsworthy research updates: brief and clear information about key trends in the policy research, especially on complex or debated topics (for example, GMOs, foresight modeling) 		<ul style="list-style-type: none"> ▪ Face-to-face meetings ▪ Media briefings ▪ Trainings for journalists on specific topics ▪ Targeted key messages

Organization and main activities

In Phase 1, PIM's communications activities at the program level have been coordinated by **one full-time Communications Specialist in the PIM Program Management Unit (PMU)**. The main areas of focus have been on establishing the program's internet presence (program [website](#) and selected social media channels⁴); sharing PIM news with collaborators, partners, and donors (PIM newsletter⁵, blogs⁶); producing two "18-months progress reports"⁷; internal communications (web-based collaboration platforms,⁸ PIM extended team meetings); supporting PIM's engagement in external events; developing [PIM's Branding and Acknowledgment Guidelines](#) and monitoring their implementation; and coordinating with researchers and IFPRI's Knowledge Management (KM) team to ensure efficient harvesting and proper cataloguing of the program publications, datasets, and other knowledge products in the [IFPRI e-library](#) (the main repository of PIM outputs, see Section 3.9). IFPRI's Communications and Knowledge Management (CKM) team has been a key source of support for outreach, events, publications, knowledge management, and web development.

Among the lessons learned in Phase 1 is the conclusion that this arrangement has not been adequate to support communications with the researchers based in the Centers other than the Lead Center. To act on this lesson, PIM will establish a **PIM communicators group** that will include: Centers' communications specialists supporting research activities within the PIM portfolio; dedicated staff in each flagship; managers of the websites and social media of the PIM-supported projects; communications representatives of the PIM managing partners; and representative of IFPRI's CKM team. The group will be coordinated by the PIM Communications Specialist, and will convene electronically on a regular basis to share information and experience, plan future activities, and discuss results. **A specific area of focus for this group will be the implementation of the program's Branding and Acknowledgment Guidelines, to ensure that all PIM outputs are appropriately branded and tagged to PIM** (see Section 3.9).

Additionally, PIM will seek to strengthen its communications through **formalizing annual plans for communications at the program and flagship levels, developing a relevant Monitoring and Evaluation system for the communications function, and ensuring that flagship leaders, activity leaders, and principal investigators include communications in planning and budgeting.**

The main **program-level communications activities** in Phase 2 will include:

- Making PIM research results and knowledge products publicly available and visible through effective knowledge management and further development of the program website, blogs, and social media channels.
- Facilitating PIM engagement in the global policy dialogue through publicizing key research findings and tools to support decision making; organizing of and participating in policy events; and interactions with the media.

⁴ [Twitter](#), [SlideShare](#), [Flickr](#), [Scooplt](#), [Storify](#)

⁵ PIM [quarterly newsletter](#) has 578 subscribers as of February 2016.

⁶ PIM currently maintains two blogs: general [news from PIM](#) and [EnGendering Data](#), a blog on collecting and analyzing sex-disaggregated data to improve the knowledge base on the role of gender in agriculture and food security.

⁷ See <http://www.ifpri.org/publication/policies-institutions-and-markets-first-eighteen-months> and <http://www.ifpri.org/publication/policies-institutions-and-markets-stronger-evidence-better-decisions>

⁸ In addition to the program's SharePoint portal, a few dedicated collaborative spaces were created on the CGXchange platform in Phase 1, e.g. for [development of the extension \(2015-2016\) proposal](#), the [PORIA workshop](#), and the [Phase 2 proposal development](#).

- Demonstrating accountability to donors and partners through regular reports on program results, delivery, and costs.
- Supporting program communications through collaborative web-based platforms, team meetings, and regular updates on the program developments, including major external and internal news (website, newsletter).

The **flagship-level communications activities** will be defined in accordance with the annual plans of work. Based on the experience from Phase 1, in most cases big flagship-level communications activities (for example, events or publications) will be owned and organized by a hosting CGIAR Center. Additionally, flagship leaders will appoint a staff member responsible for liaising with the PMU on communications (flagship representative in the PIM communicators group, see above), including coordination regarding the following flagship-level communications activities:

- Sharing flagship news and updates with other PIM colleagues to support joint learning and coordination (specifically through regular contributions to the PIM newsletter and blogs).
- organizing knowledge-sharing and capacity building events on the topics of the flagship research, especially in the CGIAR countries of collaboration.
- Representing PIM at local/regional events.
- Supporting application of the PIM Branding and Acknowledgment Guidelines.

Budget

The **PIM communication budget for 2017** is estimated at **\$3.6M**, which represents **3.9%** of the total PIM budget. This includes: (a) flagship-level budgets (including publications and workshops and 0,3 FTE of a Communications Specialist for each flagship); (b) \$310K in the management and support costs to support the program-level communications strategy (see Table 1.1.4.1, Section 1.1.4, CRP budget narrative).

3.11.5 PIM countries of engagement

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
Bangladesh	Collaboration ++	Biosafety regulations and policies, foresight modeling and innovation systems, technology adoption, CSISA	Structural transformation, with CSSP as partnership vehicle	Distortions	Social protection, insurance	Tenure, land governance, shared landscapes	Gender, migration, off-farm employment
Benin		Foresight modeling and innovation systems					Women's access to assets
Botswana		Foresight modeling and innovation systems					
Brazil		Foresight modeling and innovation systems					
Burkina Faso	Collaboration +	Foresight modeling and innovation systems					Women's access to assets
Cambodia						Land governance	
China		Foresight modeling and innovation systems					

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
Colombia		Foresight modeling and innovation systems					
Cote D'Ivoire		Foresight modeling and innovation systems					
Ecuador				Interventions			
Egypt		Foresight modeling and innovation systems					Productivity/decent work
Ethiopia	Collaboration ++	Foresight modeling and innovation systems, regulatory issues	Structural transformation, with CSSP as partnership vehicle	Value chain hub and interventions	Social protection	Land governance, shared landscapes	Gender, migration, and off-farm employment
Ghana	Collaboration +	Foresight modeling and innovation systems; Virtual Information Platform	Structural transformation, with CSSP as partnership vehicle	Distortions, interventions		Land governance	Women's access to assets
Guatemala						Land governance	
Honduras				Interventions, scaling research			

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
India	Collaboration +	Foresight modeling and innovation systems, private seed companies, CSISA		Scaling research	Insurance	Land governance, shared landscapes	Gender, migration, and off-farm employment
Indonesia		Foresight modeling and innovation systems				Forest governance (CIFOR)	
Kenya	Collaboration +	Foresight modeling and innovation systems, private seed companies		Interventions		Land governance, shared landscapes	
Laos		Foresight modeling and innovation systems					
Malawi	Collaboration +	foresight modeling and innovation systems, regulatory issues	Structural transformation, with CSSP as partnership vehicle	Scaling research		Land governance	Gender, migration, and off-farm employment
Mali	Collaboration +	Foresight modeling and innovation systems			Social protection	Land governance	
Morocco						Land governance	Productivity/decent work

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
Mozambique	Collaboration +		Structural transformation			Land governance, community land tenure	
Myanmar		Foresight modeling and innovation systems	Structural transformation, SAM training			Land governance, shared landscapes	Gender, migration, and off-farm employment
Nepal	Collaboration +	Foresight modeling and innovation systems				Land governance	
Nicaragua	Collaboration ++	Foresight modeling and innovation systems		Interventions			
Niger	Collaboration +	Foresight modeling and innovation systems					
Nigeria	Collaboration ++	Foresight modeling and innovation systems, regulatory issues, seed research with RTB	Structural transformation, with CSSP as partnership vehicle	Distortions, interventions		Land governance	Women's access to assets
Pakistan		Foresight modeling and innovation systems, regulatory issues					

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
Peru		Foresight modeling and innovation systems		Value chain hub		Forest governance (CIFOR)	
Philippines		Foresight modeling and innovation systems, regulatory issues					
Senegal		Foresight modeling and innovation systems		Value chain hub, interventions, scaling research			Women's access to assets
Tanzania	Collaboration ++	Foresight modeling and innovation systems, regulatory issues, seed research with RTB, Virtual Information Platform	Structural transformation	Distortions, interventions		Land governance, shared landscapes	
Thailand		Foresight modeling and innovation systems					
Tunisia		Foresight modeling and innovation systems					

Country	CGIAR status	Flagship 1	Flagship 2	Flagship 3	Flagship 4	Flagship 5	Flagship 6
Uganda	Collaboration +	Foresight modeling and innovation systems, regulatory issues, Virtual Information Platform		Interventions		Land governance, shared landscapes, forest governance (CIFOR)	Women's access to assets
Vietnam	Collaboration ++	Foresight modeling and innovation systems, regulatory issues				Land governance	
Zambia	Collaboration +	Foresight modeling and innovation systems	Structural transformation			Land governance	
Zimbabwe		Foresight modeling and innovation systems					

3.11.6 List of PIM 2012-2016 ISI publications

This document can be accessed [here](#).

3.11.7 PIM’s contribution to SLO targets: methodology note

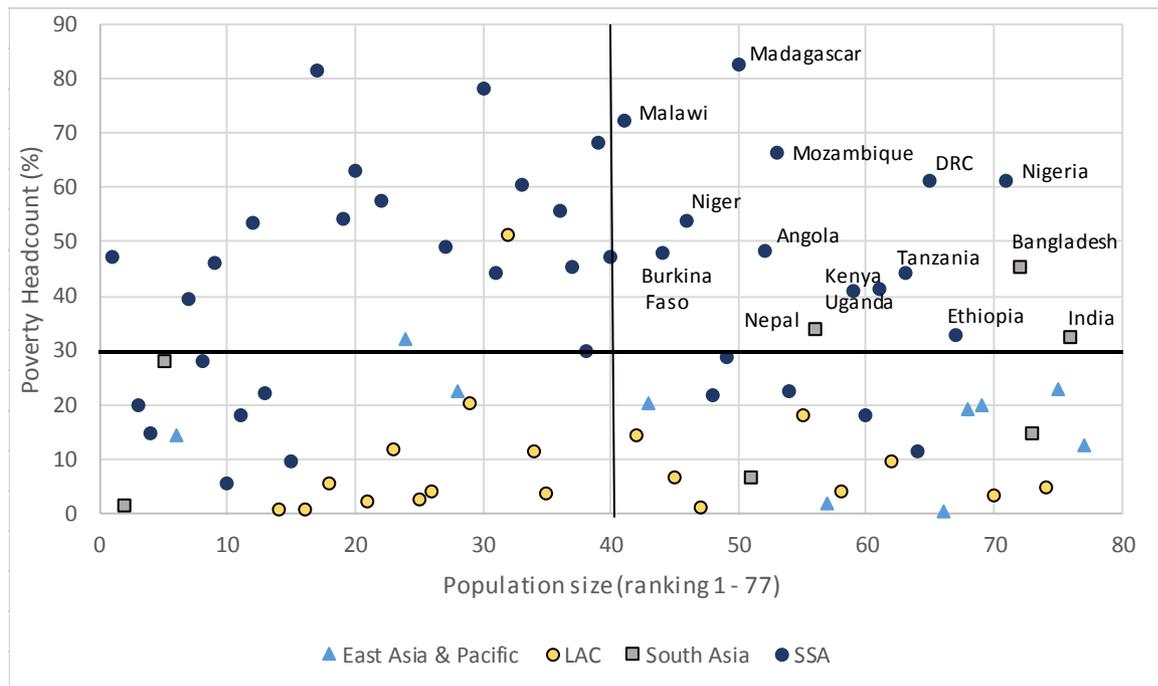
3.11.7.1 Introduction

Table A of the Performance Indicators Matrix asks for a quantitative statement of PIM’s contribution to core indicators and targets of CGIAR by 2022. **This paper outlines an approach to assessing the quantitative impact of PIM, and explains the methodology used to derive the numbers in Table A.**

A number of caveats are in order. As an Integrating Program of CGIAR, PIM achieves impact jointly with partners. Attribution of impact solely to PIM is questionable in light of the mandate of the program to contribute with others. As noted in Section 1.0.1, sustainable and inclusive agricultural growth is achieved through the synergy of reforms and investments. Imposing separability and assessing the impact of reforms alone can be done econometrically (see Fuglie and Rada, 2013), but such ex post analysis will not necessarily have the predictive power required for Table A, nor are the relevant data to build scenarios available. Finally, the role of research in securing reform is not straightforward. As noted in the discussion of political economy in the narrative of Flagship 2, evidence generated by research is but one determinant of decisions regarding reform.

Perhaps a more fundamental caveat relates to the indicator used to track the SLO on reducing poverty. The target for the number of people exiting poverty (30 million people) relates only to the poverty headcount; that is, the number of people with incomes below the international poverty line (until recently \$1.25 in 2005 PPP, and subsequently adjusted to \$1.90 in 2011 PPP) who move above it. As noted in Section 1.0.1, Africa south of the Sahara, plus India and Bangladesh are major areas of focus of PIM’s work. As shown in Figure 3.11.7.1.1 below, African countries and India and Bangladesh are well represented among those that are both large in size and poor. Among the African countries, Ethiopia, Nigeria, and Tanzania are covered by most PIM flagships.

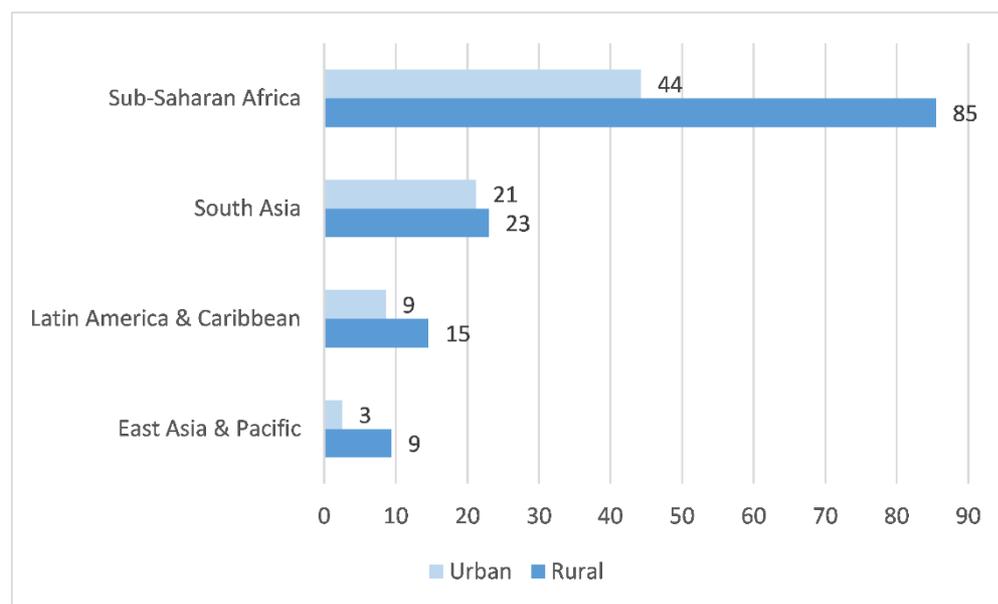
Figure 3.11.7.1.1: Countries by population size and poverty headcount



The poverty headcount is important, but relying on this indicator alone misses important contributions that agricultural growth makes to reduction of poverty. The depth of poverty is measured by the poverty gap, or the distance to the line. Where the poverty gap is large, this is the measure that is most relevant for human welfare, and it is not captured in Table A. Nor is it reflected in the second target for SLO 1 (SLO target 1.2), which is framed solely on the headcount. As shown in Figure 3.11.7.1.2 below, the additional

income required to move the average poor rural person in East Asia (where the gap is small) out of poverty is \$9 per year, while the amount required for the average poor rural person in Africa south of the Sahara is \$85 per year. The combination of low headcount poverty and small gap in East Asia means that an incremental income stream of as little as \$10 annually targeted to the poor could essentially eliminate poverty (as measured by the international line). A broadly shared agricultural growth process that increases annual incomes in Africa south of the Sahara by \$50 would have an enormous impact on household welfare, but bring only a modest reduction in headcount poverty.

Figure 3.11.7.1.2: Annual transfer to lift one person out of poverty by region (in 2005 PPP \$)



Source: A. Nin-Pratt, *correspondance* (2016)

With the above caveats in mind, **the PIM team has approached Table A in three ways, and triangulated the findings to arrive at the numbers presented. The first approach is basic rate-of-return analysis**, with assumptions about where returns are generated and how they are used. **A second approach calculates the direct income effect** on smallholder producers due to adoption of improved technologies and management systems. **A third approach amplifies the second by adding indirect effects** of agricultural growth (see Section 1.0.1) through linkages with economywide impacts.

The four SLO targets that PIM influences most are:

- **SLO target 1.1:** 100 million more farm households have adopted improved varieties, breeds or trees, and/or improved management practices
- **SLO target 2.1:** Improve the rate of yield increase for major food staples from current < 1% to 1.2% - 1.5% per year
- **SLO target 1.2:** 30 million people, of which 50% are women, assisted to exit poverty
- **SLO target 3.3:** 55 million hectares of degraded land area restored

The target rate of yield increase for staples is quite close to the rate already observed in recent years according to FAO data. If the target is attained and not exceeded, food staples would provide little of the income growth needed to meet the poverty target. Much of the direct income effect of agricultural growth would have to come from the livestock sector, and shifts to high valued products (and away from staples).

3.11.7.2 Poverty reduction estimated through rate of return analysis

As noted in Section 1.0.2, PIM research overall aims for a modified internal rate of return (MIRR) of at least 12%. As noted in Hurley et al. (2014), this is consistent with observed rates of return to agricultural

research, and on the conservative side. One could take a very simplistic interpretation of the rate of return as the earnings of the investment that can be harvested each year as income transfers for poor people, without touching the principal, which remains as the knowledge capital to raise capacity in the future. Using (a) a formula that includes an increasing effectiveness of research investments up through 10 years, after which they depreciate but continue to provide returns; (b) a steady annual research investment of just under \$100 million; and (c) a target MIRR of 12%, we calculate a perpetual income stream that is produced by the cumulative research investment that can be applied to reduce poverty. This amount is estimated to be from \$90 to \$140 million each year depending on assumptions of returns to research (including depreciation rates).⁹ If all of this were applied to poverty reduction in India, about 5 million people would be moved over the poverty line. The numbers in Africa south of the Sahara would be close to 1 million (because of the larger poverty gap). If the transfers were concentrated among those closer to the poverty line, numbers would increase correspondingly.

A pure transfer would not necessarily put recipients sustainably over the poverty line, but one could refer to the literature on entry and exit from poverty to estimate numbers who would remain out of poverty. Not all benefits of PIM's research, however, can be assumed to go to the poor. Many accrue to nonpoor smallholders, other actors in value chains, and consumers who are above the poverty line but below the \$3 per day line. The income growth that these people realize contributes to rural transformation and affects the poverty headcount indirectly, through linkage effects. With a smaller number of people moved out of poverty directly, but larger numbers affected by income growth and rural transformation, the reduction in the headcount would still be in the order of 2-5 million people, depending on assumptions about regional distribution.

3.11.7.3 Direct effects of PIM's research on SLO targets for adoption (1.1), productivity (2.1), and poverty (1.2)

An alternative approach to estimating PIM's quantitative impact starts with assumptions about households reached, adoption of technology, yield increase, and incremental income earned. The first three SLO targets listed above are linked in terms of PIM's impact pathway. The methods to estimate impact are therefore explained together. The land restoration target is reached through a different impact pathway and is described separately. In each case, we draw upon national data for key PIM countries to establish an estimate of PIM's contribution in that country. We then use these results, in combination with estimations of impact through influence in other countries, to establish a total contribution.

Table 3.11.7.3.1 below indicates the total number of rural/farming households, which is the population from which the PIM contribution to all three targets is drawn. Among the target countries are several with very large rural populations, including India, Bangladesh, Ethiopia, and Nigeria. The second column gives the number of rural households under the poverty line of \$1.25 (2005 PPP) per capita per day. The third column provides information on the proportion of farming households or land area (in the case of India) with improved varieties of major food crops. This variable can be viewed as a proxy for baseline adoption of technology and management practices, and reveals that for each country there is potential for increase. The fourth column shows the mean rate of fertilizer use per hectare nationwide, a proxy for the level of intensification. This is an important component of yield growth, and the potential for increasing use of purchased inputs is part of our formula to estimate PIM's contribution. The potential for PIM research to increase yield growth through increased use of inputs is much less in countries such as Bangladesh and India, where input use is high, than it is in the African countries. The mean and recent trend growth in yield of the major crop in each country is an indicator of the scope for yield increase,

⁹ This amount is realized after about 15 years of research investment and will continue, assuming that research investments continue. Given that CGIAR has been investing in research for decades prior to 2017, it is not unreasonable to expect such income streams from research to be present by 2022.

given potential and recent experience. Finally, an estimate of total factor productivity (TFP)¹⁰ growth in agriculture over the past 16 years is presented. This shows the potential for acceleration through technology and policy interventions.

Table 3.11.7.3.1: Characteristics of key PIM Countries

	Number of farming households ^A	Number of rural households in poverty ^B	% using improved seed ^C	Mean fertilizer use kg/ha ^D	Mean yield of major crop ^E	Recent growth in crop yield (2009 – 2014) ^F	Annual total factor productivity growth 1995-2011 ^G
Nigeria	16,900,000	10,700,000	22.0	17.8	1.84	-4.61	3.2
Ethiopia	10,400,000	3,484,000	19.0	19.2	3.42	8.91	2.7
Tanzania	6,473,680	2,803,988	38.0	4.7	1.60	3.45	1.7
India	90,000,000	23,130,000	31.5 ^{C1}	157.5	3.62	2.36	1.7
Bangladesh	27,200,000	14,500,000	52.0 ^{C1}	208.7	4.42	0.68	2.6

A – HarvestChoice; International Food Policy Research Institute (IFPRI), 2016, "Sub-national Poverty Statistics in the CGIAR CRP II Priority Countries", <http://dx.doi.org/10.7910/DVN/SEPATX>, Harvard Dataverse, V1

B - HarvestChoice; International Food Policy Research Institute (IFPRI), 2016, "Sub-national Poverty Statistics in the CGIAR CRP II Priority Countries", <http://dx.doi.org/10.7910/DVN/SEPATX>, Harvard Dataverse, V1; World Bank Data for Ethiopia poverty rate.

C – Bangladesh from 2012 data from Ahmed et al. 2013; Ethiopia from Rural Socioeconomic Survey (ERSS) 2011-2; Nigeria from General Household Survey-Panel (GHS) 2012-3, Tanzania from National Panel Survey (TZNPS) 2012-3. It is also useful to also note the DIIVA findings that show percentage of households adopting modern varieties being 41% for Nigeria, 33% for Ethiopia and 32% for Tanzania.

C1 – For Bangladesh the figure pertains to percentage of households purchasing seed of any type; for India it is the percentage of rice growing area under high yielding varieties (Agriculture Statistics at glance 2014)

D – World Bank 2013

E – FAOSTAT (2016), Nigeria, Ghana, Ethiopia & Tanzania – Maize; India & Bangladesh – Rice

F - HarvestChoice; International Food Policy Research Institute (IFPRI), 2016, "Five-Year Yield Growth Rates of Major Crops in CGIAR CRP II Priority Countries", <http://dx.doi.org/10.7910/DVN/TS3XYZ>, Harvard Dataverse, V1

G – Calculation from Nin-Pratt using FAO data.

PIM's contribution to adoption of technology (SLO target 1.1)

PIM contributes to adoption of technology through foresight analysis (which identifies promising technologies), research on regulatory reform for release of new varieties, tools for targeting release of varieties, research on extension methods to understand how to convey to producers information about the technologies, testing of interventions in value chains that improve returns to farmers, research to increase tenure security of smallholders, research on innovations to enhance women's empowerment, and evaluation of policy options to create a conducive policy environment for farmers. Adoption is not straightforward to measure, especially at scale, and in Phase 2 PIM is investing in improved tools for that purpose. For the present analysis, we use adoption of improved varieties of the major crops as a proxy for technology adoption.

¹⁰ Total factor productivity growth is the difference between growth in output and growth in factors of production (labor, land and inputs). Yield growth can be decomposed into total factor productivity growth and input intensification.

Table 3.11.7.3.2: PIM's contribution to adoption of technology in five priority countries

Country	PIM's contribution	Number of households that adopt technologies with significant PIM contribution, 2017-2022
Nigeria	IFPRI Country Strategy Support Program; seed policies; Virtual Information Platform on technology adoption; value chain improvement; tenure security; policies and expenditures to promote agricultural growth	1,000,000
Ethiopia	IFPRI Country Strategy Support Program; seed policies; value chain improvement; improved targeting; tenure security; social protection; policies and expenditures to promote agricultural growth	1,000,000
Tanzania	Seed policies; improved targeting: value chain improvement; policies and expenditures to promote agricultural growth	500,000
India	IFPRI country office; improved targeting; seed policies; policies and expenditures to promote agricultural growth	2,000,000
Bangladesh	Country Strategy Support Program; improved targeting; seed policies; social protection policies and expenditures to promote agricultural growth	1,500,000
Rest of the world	Significant PIM research will also take place in Ghana, Kenya, Malawi, Mozambique and Uganda, among others	4,000,000

Ideally, the contribution of PIM to adoption of technology would be calculated from an estimation of (a) the percentage contribution of PIM to policy (and institutional) outcomes; and (b) the impact of outcomes on technology adoption. Those would vary by country and could be informed by previous impact assessments and the literature on constraints to technology adoption (e.g. poor extension systems, poorly targeted technologies, poor access to output or input markets, which PIM's research addresses). In light of time and data constraints, we bypass the more rigorous approach and impose assumptions about numbers of adopting households drawing on data presented in Table 3.11.7.3.1. The results are shown in Table 3.11.7.3.2. We estimate that PIM together with partners will contribute to technology adoption by 6 million households in the five countries and another 4 million in the rest of the world.

PIM's contribution to rate of yield increase of major staple crops (SLO target 2.1)

PIM does not develop new technologies. The main contributions of the program to yield increase are: (a) research that improves the enabling environment and incentives for adoption of technology; and (b) research that increases productive use of complementary inputs (such as fertilizer).

The impact of technology and incentives on productivity has been shown to be significant by Fuglie and Rada (2013) for African countries. Using estimates based on national-level data over 40 years, these authors estimate that a doubling of investment in agricultural research to develop new technologies would have about the same effect on total factor productivity as would the removal of policy distortions. Distortions are not easy to remove, but the analysis does indicate the potential importance of research that focuses on productivity both directly and indirectly through improving the enabling environment. Both of those efforts are assumed to contribute to our calculation of PIM's contribution.

The complete formula for our estimation of PIM's contribution to yield growth is:

$$\text{PIM contribution to yield of staple crops} = [(\text{PIM contribution to technology adoption}) \times (\text{technology effect on yield})] + [(\text{PIM contribution to increased use of inputs}) \times (\text{input effect on yield})]$$

Each of these pathways contains a subjective element (i.e. PIM's likely contribution) and an element that can be bounded by results of empirical studies (i.e. effect of technology on yield and effect of input use on yield).

Research by Fuglie (e.g. Fuglie and Rada 2013, Fuglie et al. 2012) demonstrates some important patterns and relationships. First, total growth of agricultural output has been rising at about 3.4% per year in developing countries since the 1980's. Land area expansion accounts for about 1% of this throughout the period, with the remaining 2.4% considered to be yield growth. Of the yield growth, input intensification was the key explanation during the 1980's, but has been superseded by total factor productivity (TFP) growth since then. During the early 2000's, TFP accounted for about 2% of the 2.4% yield growth, and input intensification for only 0.4%¹¹. This is in part due to the plateauing of input use in many Asian countries, the continuing low use of inputs in Africa, as well as higher adoption rates of technology.

Given the current scenario, future yield increases in India and Bangladesh will need to be achieved wholly through TFP increases, while in PIM target African countries, in the medium term (including 2022), there will be a balance between input intensification and TFP contributions. Since PIM aims to influence both TFP and intensification, the balance selected does not affect much our estimate of contribution; for that reason we assume that each will play an equal role (50%) in yield increase in the period 2017-2022 for Nigeria, Ethiopia and Tanzania.

Although the evidence produced by Fuglie and FAO (see Table 3.11.7.3.1) suggests a higher annual rate of growth in yields in recent years, the SRF SLO target aims for an increase from a baseline of < 1% to 1.25%. In our calculation, we assume a baseline rate of yield growth of 1% to conform to the SRF, and then compare a "PIM-influenced" rate against this in the five countries and in the rest of the world. Since the current yield growth rate appears to be significantly larger, we assume that reasonable increases above the baseline of 1% are clearly achievable.

Table 3.11.7.3.3 shows the results of our estimation. It draws upon the estimated number of households adopting new technology from Table 3.11.7.3.2. We further assume that where input use is at present low, the same households will intensify their input use as a result of PIM's work on technologies and the enabling environment. Thus benefits of new technologies and better use of purchased inputs are restricted to the adopting households. This conservative approach is likely to underestimate the impact.

We assume that the rate of yield growth for adopters is double the rate of those who do not adopt. In both cases we assume the rate of increase is 2% (which given the empirical studies is clearly attainable). In concrete terms, this means that in the base scenario of 1% growth, a yield of 1 ton/ha in 2017 would rise to 1.06 ton/ha in 2022. A farmer adopting a new variety would see yield increase to 1.13 ton/ha, while a farmer adopting a new variety and intensifying input use would see yield grow to 1.27 ton/ha.

PIM's effect on yield growth in each country is given in Table 3.11.7.3.3. Contributions are higher in Africa, where new technology and input intensification occur together. There, baseline growth is raised to between 1.18% and 1.29%. The corresponding figure is only 1.02% and 1.06% for India and Bangladesh respectively. The population-weighted average for the 5 countries is 1.07%. We also estimate a contribution to the rest of the world, which for the PIM program is mainly in Africa. This contribution is based on the average estimate from Nigeria, Ethiopia and Tanzania, but factors in a reduction due to less

¹¹ It is important to note that calculating yield growth, growth of inputs and total factor productivity growth is wrought with data challenges and various authors have employed different data sets and methods to arrive at estimates, which themselves vary.

intensive efforts from PIM in the other countries (which results in a lower proportion of “influenced households to total households” in that aggregate group of countries). Finally the global average is shown to be 1.07%. This shows that PIM alone, with budget limitations, cannot by itself increase national yield growth rates above the target of 1.25% in the time frame of 6 years. Nonetheless, it can make an important contribution, which can help CGIAR as a whole achieve the target. Further gains can be achieved through collaboration with other CRPs. For example, collective engagement on removing seed system regulatory barriers could expand the number of households “influenced” in a country, while research by the AFS CRPs on technology development could increase the productivity for those households which are positively affected by policy reforms.

Table 3.11.7.3.3: PIM's contribution to yield growth increase of major staples

	Number of farming households	Baseline annual yield growth	PIM's contribution to adoption of technology - # households (from Table 2)	Technology effect on annual yield growth	PIM's contribution to input intensification - # households	Input effect on annual yield growth	Annual yield growth after both effects
Nigeria	16,900,000	0.01	1,000,000	0.02	1,000,000	0.02	0.011775
Ethiopia	10,400,000	0.01	1,000,000	0.02	1,000,000	0.02	0.012885
Tanzania	6,473,680	0.01	500,000	0.02	500,000	0.02	0.012317
India	90,000,000	0.01	2,000,000	0.02	0	0	0.010222
Bangladesh	27,200,000	0.01	1,500,000	0.02	0	0	0.010551
Total for the five countries	150,973,680		6,000,000		2,500,000		0.010729
Rest of the world	50,000,000		4,000,000		4,000,000		0.010698
Grand total	200,973,680		10,000,000		6,500,000		0.010721

PIM's contribution to reduction of poverty (SLO target 1.2)

The cost of lifting one (average poor) person out of poverty is relatively low in rural India, at \$22 per year, reflecting the fact that most of the poor are near the poverty line. Ethiopia is next lowest, at \$34 per person per year. Next come Bangladesh and Tanzania, at \$56 and \$63 respectively. At the high end is Nigeria, where the estimated transfer needed to lift the average rural poor person out of poverty is \$137.

CGIAR seeks not only to assist people who are below or near the poverty line, but to significantly raise income levels for farming households who are at or modestly above the poverty line. Thus, while our analysis examines the extent to which we are able to assist people to exit poverty, it is important for CGIAR to also assess the extent to which we are able to significantly raise incomes of the poor and contribute to rural prosperity.

Rural incomes derive from many sources, including own-farm production, wage work on other farms, nonfarm employment (formal or informal), and safety net programs and other risk-reducing mechanisms (see Section 1.0.1). Agricultural income is most closely aligned with the concept of net returns, i.e. the value of output less the cost of purchased inputs. This can be increased through expanding area under agriculture or raising the value of production on a fixed piece of land. The latter can be accomplished by increasing total factor productivity (e.g. new technologies), optimizing the use of inputs (e.g. fertilizer), or raising the price of output or lowering the price of inputs (e.g. through better policies). We focus initially on the relationship between total factor productivity (TFP) growth and exit from poverty, which is an important relationship for CGIAR.

Table 3.11.7.3.4 shows first the annual growth rate of total factor productivity (using FAO data) across the five countries. We analyze the effect that these productivity growth rates would have on future poverty levels. To do this, UN population projections to 2050 are used to calculate the base scenario of number of poor in 2050, assuming that the poverty rate is unchanged over time and that there is no agricultural growth. This increases the number of poor in the five countries from 574 million today to 831 million in 2050. If the current TFP growth rates are included, the number of poor in 2050 will be less, at 780 million. This means that TFP growth at current levels contributed to an exit of 51 million people from poverty.

Several implications can be drawn from this:

1. The ability of agricultural productivity growth alone, even accelerated growth, to enable farming families to exit poverty is limited. Direct income effects are significant, but modest.
2. All else equal, countries with large poverty gaps are less able to reduce poverty through agricultural growth alone. Nigeria, with a TFP growth of almost twice that of India, has fewer people exiting poverty than India over the period of time, because many individuals have incomes far from the poverty line.
3. Any single CRP is likely to have a small incremental effect on TFP, which would represent a fraction of the 51 million people exiting poverty by 2050 solely through growth in TFP in this analysis.

Table 3.11.7.3.4: Projections of agricultural growth and poverty using historical TFP growth rates (1995-2011) and projections of population from UN for the period 2017-2050 (investment values are in million 2005 \$ PPP)

	Ethiopia	Nigeria	Tanzania	Bangladesh	India	Total
TFP growth	2.7	3.2	1.7	2.6	1.7	-
Share of agriculture In GDP	20.8	13.6	15.6	10.6	9.1	-
Initial population	99	182	53	161	1,311	1,806
Final population	184	386	132	201	1,691	2,594
Poverty headcount %	30	41	22	42	30	-
Initial number of poor	30	75	12	67	390	574
Number of poor without agric. growth	56	159	29	84	503	831
Number of poor with agric. growth	48	143	27	78	484	780
Difference	-8	-16	-2	-6	-19	-51
Initial R&D investment	70	394	81	223	3097	3,865
Average investment per year	101	1,407	326	380	10,450	12,664
Total R&D investment	3,419	47,824	11,088	12,905	355,289	430,525

Source: Nin-Pratt, personal communication

The analysis shown above is useful to put the contribution of TFP growth into perspective, but it offers little insight into change that can be expected by 2022, which is the horizon of interest for Table A of the Performance Indicators Matrix. We therefore attempt an alternative, bottom up approach, converting productivity increases calculated in Table 3.11.7.3.3 to incremental earnings at the household level, and then comparing those to the poverty gap. We assume that among adopting households, 20% will be below the poverty line. We further assume that each household has one hectare under the new technology, and that adoption is sustained until 2022.

The results are shown in Table 3.11.7.3.5. Incremental household earnings vary from \$32 in India and Bangladesh to \$66 in the African countries. Column 6 shows the average cost per person per year to move an individual above the poverty line, ranging from \$22 in India to \$137 in Nigeria. Comparing these two columns, one can calculate the maximum number of individuals per household that could exit poverty (if the productivity increase were concentrated on those individuals). Where the gap is large (Nigeria), productivity growth alone does not reduce the poverty headcount significantly even though yields grow through adoption of new technologies and more intensive use of inputs. In Bangladesh, the gap is smaller, but so is the productivity increase, since input use is already very high.

For significant reduction in poverty headcount, other sources of income will also be required. In several countries safety nets provide targeted assistance to the poor. The average household participating in the Ethiopian Productive Safety Net Program between 2006 and 2010 received an additional \$40 per year in transfers (Berhane et al. 2014). Spread over household members, this amounts to a per capita increment of \$8-10. Households in Ethiopia both adopting new technology and participating in the safety net program would realize an additional \$120 annually. At that level, an additional 200,000 people in this group would exit poverty. If benefits were concentrated within the household, one person would exit poverty from all the households who participate in the program, estimated at 800,000 for Ethiopia. Similarly, we estimate effects in Bangladesh of approximately 1 million by adding social protection.

Table 3.11.7.3.5 shows a total of about 1.3 million households exiting poverty through the direct effects of income increase occasioned by PIM's contribution to adoption of technology and resulting yield effects.

Table 3.11.7.3.5: Numbers of people exiting poverty through PIM's contributions to adoption of technology and social protection

	Number of poor rural households	Number of households reached by PIM and adopting technology ^A	Number of poor households reached by PIM and adopting technology	Increase in production in 2022 for households adopting (kg)	Net Value Per HH in 2022 (@ \$2500 ton)	Avg cost per person per year to exit poverty (poverty gap)	Maximum number of persons exiting poverty per avg HH	Number of poor individuals exiting poverty from avg HH	Number exiting with social protection ^B
Nigeria	10,700,000	1,000,000	200,000	265	66	137	0	0	0
Ethiopia	3,484,000	1,000,000	200,000	265	66	34	2	400,000	1,400,000
Tanzania	2,803,988	500,000	100,000	265	66	63	1	100,000	100,000
India	23,130,000	2,000,000	400,000	126	32	22	1	400,000	400,000
Bangladesh	14,500,000	1,500,000	300,000	126	32	56	0	0	1,000,000
Total for the five countries	54,617,988	6,000,000	1,200,000					900,000	2,900,000
Rest of the world		4,000,000	800,000					360,000	500,000
Grand total								1,260,000	3,400,000

A - For this analysis we are assuming these households have adopted technology partly from policies and interventions from at the beginning of the period. This is not unreasonable if one considers pre-PIM and Phase 1 PIM legacy work by IFPRI.

B – We provide estimates of social protection impacts only for Ethiopia and Bangladesh, the two countries with clear influence from IFPRI research. In Ethiopia, we assume that one-third of poor rural households are included in the program, which reflects coverage estimates. In Bangladesh, the figures are based on an evaluation which demonstrated the number of poor households able to find employment through the program.

C – We simply apply the same rest of world to five country ratio as in the previous table.

This calculation differs from the rate of return analysis, because it assumes that these same households have realized income gains consistently over the 6-year period of Phase 2. Their cumulative benefit is thus several times the poverty gap, and thus the calculation reflects not only the amount required to move across the poverty line but also the income needed to stay over it. When social protection benefits are added from two key countries of PIM research, the number exiting poverty increases to just above 3 million.

3.11.7.3 Adding indirect or economywide effects

Drawing from studies across a number of countries, each dollar of direct income growth from agriculture generates an additional \$1 through indirect effects. The indirect effects will not all accrue to the poor, but if 25% do, then the number of people exiting poverty would increase accordingly (by another 620,918).

The calculations and assumptions above suggest that a reasonable estimate of the number of people exiting poverty through the contributions of PIM would be between 3 and 4 million, with distribution among countries as shown in Table 3.11.7.3.1.

Table 3.11.7.3.1: PIM's contribution to exit from poverty via adoption of technology, social protection, and economywide effects

	Number of households reached by PIM & adopting technology	Number of poor households reached by PIM & adopting technology	Value per HH in 2022 (@ \$250 ton)	Avg cost per person per year to exit poverty	Maximum number of persons exiting poverty per avg HH	Number of poor individuals exiting poverty from avg HH	Number exiting poverty with social protection	Non Agriculture Income Generated for Poor Households Via Multiplier ^A	Number exiting poverty with social protection and multiplier
Nigeria	1,000,000	200,000	\$66	\$137	0	0	0	\$16,500,000	120,438
Ethiopia	1,000,000	200,000	\$66	\$34	2	400,000	1,400,000	\$16,500,000	1,885,294
Tanzania	500,000	100,000	\$66	\$63	1	100,000	100,000	\$8,250,000	230,952
India	2,000,000	400,000	\$32	\$22	1	400,000	400,000	\$16,000,000	1,127,273
Bangladesh	1,500,000	300,000	\$32	\$56	0	0	1,000,000	\$12,000,000	1,214,286
Total for the five countries	6,000,000	1,200,000				900,000	2,900,000		4,578,243
Rest of the world ^B	4,000,000	800,000				360,000	500,000		785,000
Grand total	10,000,000	2,000,000				1,260,000	3,400,000		5,363,243

A – With a multiplier of 1, this is column B multiplied by column D to obtain total amount available. This is then multiplied by .25 as the assumed share to poor households.

3.11.7.4 Methodology for PIM's contribution to restoration of degraded land (SLO target 3.3)

A baseline estimate of degraded land from Bao et al. (2014) classified by land use type is shown in Table 3.11.7.4.1.

Table 3.11.7.4.1: Extent of degraded land according to NDVI changes

Country	Cropland	Mosaic vegetation-crop	Forested land	Other	Total (km ²)	Total (ha)
Nigeria	12,160	14,784	20,736	21,568	69,248	6,924,800
Ethiopia	35,904	30,976	9,984	151,296	228,160	22,816,000
Tanzania	12,608	112,768	139,968	188,544	453,888	45,388,800
India	289,024	25,344	115,392	43,456	473,216	47,321,600
Bangladesh	31,488	1,920	3,328	6,400	43,136	4,313,600
Total					1,288,000	128,800,000

Source: Bao et al. (2014)

For each country, we evaluate the number of hectares of restored degraded land to which PIM will contribute, via direct “action research”, and to a much larger extent through partners – e.g. through work with the Foundation for Ecological Security (FES) in India).

This will come from two primary sources:

- Restored common and forest land through improved governance (Cluster 5.2 primarily)
- Improved farm land through adoption of sustainable management practices (Cluster 1.2) in conjunction with tenure reforms and management changes (Cluster 5.1)

Table 3.11.7.4.2 summarizes these effects for the different countries.

Table 3.11.7.4.2: PIM's contribution to restoration of degraded lands (ha)

Country	Common and forest land (ha)	% of degraded land covered	Farm land (ha)	% of degraded land covered	Total (ha)
Nigeria	0	0	50,000	0.041	50,000
Ethiopia	100,000	0.005	200,000	0.056	300,000
Tanzania	100,000	0.002	50,000	0.040	150,000
India	600,000	0.033	200,000	0.007	800,000
Bangladesh	50,000	0.043	100,000	0.032	150,000
Total for the five countries	850,000		600,000		1,450,000
Rest of the world	400,000		200,000		600,000
Grand total	1,250,000		800,000		2,050,000

Notes: India is the country with the highest target because of a longstanding relationship with FES – which is already in the process of extending PIM work into 1,000 villages. The CSISA project has been extended to a second phase, which will help to bring sustainable land management practices to farmers in India and Bangladesh. IFPRI’s Country Strategy and Support Programs in Bangladesh, Ethiopia, and Nigeria will further support the adoption of sustainable practices in these countries.

3.11.7.5 References

Bao, Q., Nkonya, E. and A. Mirzabaev. 2014. Biomass Productivity-Based Mapping of Global Land Degradation Hotspots, ZEF-Discussion Papers on Development Policy No. 193, Centre for Development Research, University of Bonn.

Berhane, G., Gilligan, D., Hoddinott, J., Kuma, N., and A. Taffesse. 2014. Can Social Protection Work in Africa? The Impact of Ethiopia's Productive Safety Net Programme, *Economic Development and Cultural Change*, 63(1): 1-26.

FAOSTAT. 2016. http://faostat3.fao.org/download/Q/*/E

Fuglie, K., Wang, S. and V. Ball. 2012. *Productivity Growth in Agriculture: An International Perspective*, Oxfordshire, UK: CAB International.

Fuglie, K. and N. Rada. 2013. **Resources, Policies, and Agricultural Productivity in Sub-Saharan Africa, Economic Research Report 145, Economic Research Services, United States Department of Agriculture, Washington.**

HarvestChoice; International Food Policy Research Institute (IFPRI), 2016, "Sub-national Poverty Statistics in the CGIAR CRP II Priority Countries", <http://dx.doi.org/10.7910/DVN/SEPATX>, Harvard Dataverse, V1

HarvestChoice; International Food Policy Research Institute (IFPRI), 2016, "Five-Year Yield Growth Rates of Major Crops in CGIAR CRP II Priority Countries", <http://dx.doi.org/10.7910/DVN/TS3XYZ>, Harvard Dataverse, V1

Hurley, T., Rao, X. and P. Pardey. 2014. Re-examining the Reported Rates of Return to Food and Agricultural Research and Development. *American Journal of Agricultural Economics*, 96 (5): 1492-1504.

World Bank. 2013. <http://data.worldbank.org/indicator/AG.CON.FERT.ZS>