Plan of Work and Budget 2017

CGIAR RESEARCH PROGRAM ON Policies, Institutions, and Markets

Led by **IFPRI**

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A.1 Delivery

A.1.1 Adjustments/Changes to Theories of Change

No significant adjustments to PIM's Theories of Change are envisaged for 2017. A minor change in the cluster structure in Flagship 2 (see B.1.1 for Flagship 2) has led to a slight change in the Flagship 2 impact pathway. The PIM TOCs and impact pathways can be found here.

A.1.2 Highlight Expected Outcomes and Outputs

Flagship 1: The PIM foresight team will apply the modeling suite to inform decision making within CGIAR, and the design of significant new investment operations in Africa. Work on seed systems will emphasize vegetatively and clonally propagated crops. Work on extension will continue, with attention to gender considerations. Global and national data on public investments in agricultural research will be updated, and new indicators of the health of innovation systems developed. Technical assistance to countries improving biosafety regulations will continue.

Flagship 2: Empirical analysis in Mozambique and Tanzania will provide insights into relationships between farm structure, farm size, and productivity. Surveys on job creation in Tanzania and Ghana will be age-disaggregated and sex-disaggregated to yield insight into opportunities and barriers for women and young people. A practitioner's guidebook to political economy analysis for food security policy based on the Kaleidoscope Model of Policy Change will be produced. PIM will continue to support Cornell University's STAARS capacity building program on policy analysis for rural transformation.

Flagship 3: Information developed by the Agricultural Incentives Consortium will be used to assess the impact of distortions along value chains in Vietnam, Nicaragua, and Tanzania. Work on agricultural trade will examine the experience of the past twenty years, the implications of protectionism and slower growth for the SDGs, and agricultural trade in Africa. Work on measurement of postharvest losses along the value chain and interventions to reduce them will continue, with focus on maize storage in Ethiopia; roots and tubers in Peru, Ecuador, and Uganda; and livestock in Africa. Graduate students from developing countries at Wageningen University will be supervised to analyze maize value chains in East Africa. The Tools4ValueChains website will be maintained, and value chain hubs in Latin America and Africa will facilitate outreach to the research community and development partners.

Flagship 4: Work will address linkages between social protection and adoption of agricultural technologies by the poor. Research into the impact of social protection on nutrition will continue. Attention to age will complement the Phase 1 focus on gender, and the potential of safety net programs to improve youth employment will be assessed. Picture-based insurance instruments (as an alternative to index-based ones) implemented with active participation of farmers will be tested in India and Bangladesh.

Flagship 5: The natural resource governance team will work with the African Union Commission's Land Policy Initiative to measure land tenure security in Africa. The team will also examine the interface between collective and individual tenure systems, and implications for women's rights and conflict over resources. Capacity building materials will be developed for new approaches to training community groups on decision making for collective action; for example, using games and other simulation techniques.

Flagship 6: The gender team will use sex-disaggregated data to further understanding of women's empowerment, women's access to and control over resources, the relationships between gender and agricultural productivity, and gender dimensions of agricultural transformation, including migration issues. The CGIAR Collaborative Platform on Gender Research will be launched, and will support cross-CRP research, training, and sharing of research results, including through research and capacity building workshops.

A.1.3 Use of Different Funding Sources

For 2017, an estimated 62% of funds will come from bilateral/W3 sources, and 38% from W1-2. W1-2 funds add value by facilitating the integrative function of PIM across CRPs and across the PIM flagships. W1-2 money supports cross-national research; tools and methods; learning and impact assessment; applications of particular relevance to CGIAR; collaboration with CRPs; communities of practice to strengthen CGIAR social science research (for instance through organization of an annual CGIAR social science research conference); the CGIAR Collaborative Platform for Gender Research; and CRP management.

Table 1: CRP planned budget by flagship for 2017

Flagship Name	Planned Budget 2017 ($)		
	W1-2*	W3/bilateral	Total
FP1 Technological Innovation and Sustainable Intensification	3,891,600	8,286,648	12,178,248
FP2 Economywide Factors Affecting Agricultural Growth and Rural Transformation	2,635,000	10,066,302	12,701,302
FP3 Inclusive and Efficient Value Chains	3,435,000	4,084,959	7,519,959
FP4 Social Protection for Agriculture and Resilience	1,485,200	4,318,438	5,803,638
FP5 Governance of Natural Resources	2,190,200	3,619,829	5,810,029
FP6 Cross-cutting Gender Research and Coordination	1,100,000	1,368,059	2,468,059
CRP Management & Support Cost	*3,563,000*	*0*	*3,563,000*
Total	**18,300,000**	**31,744,236**	**50,044,236**

* Allocation as per Financing Plan

A.1.4 Planned Revisions to your Program of Work

PIM management assumes that all efforts will be made to realize the CGIAR 2017 Financing Plan communicated to CRPs on November 24, 2016, according to which PIM will receive $18.3M in W1-2 funds. The $18.3M shown in Table 1 is distributed as per instructions of the Financing Plan; that is, with 6% reductions relative to the proposal for Flagships 1,4, and 5. Flagship 6 receives slightly more than the amount in the proposal to assure a strong start to the CGIAR Collaborative Platform for Gender Research in the absence of commitment of bilateral/W3 funds for the platform in its first year. The amount of bilateral/W3 funds ($31.7M) reflects funding secured as of February 10, 2017 and proposals with a high probability of funding. The amount is below that projected in the proposal document ($45M), and will be adjusted as new information becomes available.

A.2 Collaboration and Integration

A.2.1 Contribution to and from Platforms

PIM's key interactions with Platforms will be with the Gender Platform (led by PIM) and with the Big Data Platform. The Gender Platform will provide training and access to shared results, organize CGIAR workshops, and seek co-investment from CRPs in research on one of the System-level priorities for gender research identified at the meeting of the Gender Network in Cali in October 2016. PIM will contribute to the Big Data Platform by providing data and knowledge products in the socioeconomic domain and developing spatial information on the adoption of agricultural technologies. In addition, the planning committee of the CGIAR social science research conference organized by PIM in 2017 will include a session on the work of the community of practice on socioeconomic survey data to be led by CIMMYT under the Big Data Platform. The leader of the PIM cluster of activities on science policy and innovation systems will liaise with the Genebanks Platform.

A.2.2. Cross-CRP Interactions

Work with other CRPs in 2017 will conform to the outlines presented in Annex 3.7 of the [Phase 2 proposal](). The foresight work includes planned co-investment with CCAFS, RTB, Maize, Rice, and Wheat (and possibly Fish, FTA, and Livestock). The work on seed systems for vegetatively propagated varieties will be undertaken jointly with funding from RTB and FTA, and work on policy and regulatory issues related to new technologies will be undertaken collaboratively with MAIZE and WHEAT (with an expectation that other CRPs will become involved in future years). The effect of public investments on performance in the maize sector will be studied jointly by PIM and MAIZE. Work on postharvest losses will include co-investment with MAIZE on storage methods in Ethiopia, and with RTB in Ecuador, Peru, and Uganda. PIM and CCAFS will continue to invest jointly on climate-smart insurance for weather risk in India. Work on tenure security will benefit from co-investment from WLE (governance in the Mekong and Salween water areas). In 2017 the Collaborative Platform for Gender Research will coordinate co-investment in one major topic among the four selected by the Gender Network in October 2016. The cross-CGIAR communities of practice in foresight modeling, value chains, natural resource management, and gender research will continue to be supported in 2017. PIM collaborates with A4NH through staff who contribute to both programs in flagships 4 (social protection) and 6 (gender).

All Centers and CRPs will be invited to participate in the first CGIAR social science research conference (co-organized by PIM and SPIA in July 2017 in Nairobi), which will be framed around issues related to generation and adoption of technology.

A.2.3 Expected Efforts on Country Coordination

PIM participates in country coordination as outlined in the proposal, and will have most intensive engagement in Ethiopia, Nigeria, Tanzania, Bangladesh, and India. A senior staff member of the Program Management Unit will continue to represent PIM in these processes, assisted by the IFPRI country offices. PIM has set aside $40K to support coordination by the lead centers for these countries and collective M&E activities in countries of coordination in 2017.

A.3 Management, Governance and Monitoring, Evaluation, Learning

A.3.1 Relevant Changes in Management and Governance

Please see the PIM website pages on composition of the Management Committee, Flagship and Cluster Leaders, and Center Representatives for Phase 2, as well as the PIM summary document on the TORs of the entities active in PIM's governance and management. In accordance with the increased role of the flagships in Phase 2, flagship managers have been appointed to support the flagship/cluster leadership teams. A representative has been nominated for each Center to keep the Center management informed of opportunities to contribute to PIM, expectations about the Center's delivery, and commitments to report in a timely fashion. Participating Centers are currently represented on the PIM Management Committee (MC) by the DDG-R of CIP, who holds this rotating position in 2017. Three external organizations (Michigan State University, Wageningen University, and World Vision International) are also represented on the MC. Management of the CGIAR Collaborative Platform for Gender Research has been contracted to KIT, and the Coordinator of the Platform is a member of the MC. The Independent Steering Committee will be appointed after receipt of additional guidance on the role of this body.

A.3.2 Monitoring, Evaluation, Impact Assessment, and Learning Plans

PIM will launch the MARLO (Managing Agricultural Research for Learning and Outcomes) system in the second quarter of the year. Prior to that, the PMU is engaging with flagship teams to identify aggregated bodies of work (called "projects" in MARLO) that will enhance the structural coherence of PIM, responding to recommendations from PIM's external evaluation in Phase 1. It is envisaged that some of the data collection will be undertaken in collaboration with other CRPs and SPIA in selected countries. PIM will contribute financial resources to this collective effort if agreed upon at the System level. In 2017 PIM will co-lead an external evaluation of the country program approach of its lead center IFPRI. This assessment, which includes both qualitative and quantitative dimensions, aims at identifying factors behind successes in policy research, strategy setting, and capacity development. Findings will be incorporated into future work programs throughout Phase 2.

Flagship 1: Technological Innovation and Sustainable Intensification

B.1 Delivery

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 1 over the six-year horizon contributes toward improved priority setting by research systems, development partners, and governmental agencies; reforms in policies, regulations, and institutions that affect the pace and direction of innovations; changes in decisions about investment in technology systems; and faster adoption of promising technologies and management practices. The 2017 work program is designed to meet major milestones toward these outcomes. Foresight modeling tools, data, and analyses will be improved and applied in decision making within CGIAR and by several partners, including FAO, USAID, and The World Bank. Teams working on biosafety regulatory frameworks and rules for managing genetic resources in Ethiopia, Ghana, Kenya, Nigeria, Tanzania, and Uganda will receive technical and analytical support. Data on investments in agricultural technology at the national and regional levels (ASTI) will be updated and analyzed to probe returns to investment and yield insights into the health of technology systems. Work to assist partners in targeting release of new technologies and tracking their performance will continue, in collaboration with the Big Data Platform. The work of the foresight modeling community of practice includes all CGIAR Centers and several universities (Wageningen, Oxford, Purdue, University of Florida), research institutes (Potsdam Institute for Climate Impact Research, EC Joint Research Center), and government agencies (USDA Economic Research Service). The work on technology systems includes a wide array of partners, among which are CIAT, CIMMYT, CIP, ICRAF, IFPRI, and IITA, NARS, regional and non-governmental organizations (APAARI, Digital Green), universities (Michigan State University, Paris School of Economics, Oxford, University of Ghana, Makerere), and public agencies (Ethiopian Agricultural Transformation Agency, Ethiopian Ministry of Agriculture and Natural Resources).

B.1.2 Outputs towards Outcomes 2022

Key components of the work program contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Data, models and tools, and capacity building for foresight: Enhancements will be made to the datasets used in quantitative foresight analysis. Underlying models on livestock, fish, and land use change will be improved. An upgraded IMPACT model web tool will be launched. Two training courses are planned for CGIAR staff and other potential users.

Ex ante empirical analyses at global, regional and national levels: The foresight team will apply the new tools to address a number of key questions related to priority setting. While most of the efforts will go towards a major publication due in 2018, outputs in 2017 will include analyses on forage and milk production in East Africa, effects of promising soybean innovations in Africa, potential effects of drought and heat resistance in pearl millet, research priorities for potato, ex ante assessment of impacts of C4 rice, and improved modeling of light and water-use efficiency. Monographs on climate change, agriculture, and food security in Central Asia and Latin America will be produced.

Outreach for decision support in foresight: The new Global Futures website will improve outreach. Policy dialogues will be held to communicate results to potential users; for instance, to provide support for design of the new phase of the West African Agricultural Productivity Programme supported by The World Bank.

Recommendations on policy and regulatory reforms to support the release and distribution of improved cultivars: Two journal articles related to vegetatively propagated crops will be produced: one on case studies of seed systems and one on policy options for accelerating varietal turnover.

Evidence and recommendations on how to better deliver agricultural extension and advisory services: New studies on innovative extension methods will produce working papers and a journal article on improved design of randomized control trials for testing extension approaches.

Data, analysis, and evidence to increase the impact of agricultural R&D on productivity growth: The ASTI program will launch an updated dataset on national agricultural R&D investment and capacity, including information up to 2014 for African countries. The Program for Biosafety Systems will update its database on genetically modified crops.

Recommendations on policy options for innovations in science and technology: Publications will address the impact on small-scale farmers of intellectual property rights disputes related to GM crops, policy and regulatory implications of new maize and wheat technologies, and decision tools for implementing biosafety regulatory frameworks. Briefing papers on economic assessments of GM crops in five African countries will be produced. A workshop will be held on the economic impact of a changing landscape on genetic resource policy.

Tools, methods, and capacity building for design and implementation of policies for science, technology, and innovation: Development of tools to assist African decision makers in targeting and tracking of agricultural technologies will continue, in partnership with CORAF and ASARECA for application of the tools. Models will be applied in Malawi to assess tradeoffs in decisions on sustainable intensification, including attention to gender issues.

B.1.3 Contribution of W1-2 Funds

All CGIAR Centers receive W1-2 funds for participating in the foresight modeling effort. W1-2 funds also contribute to enhanced efforts in the area of seed policy that are highly relevant for the Agrifood System CRPs. W1-2 funding allows analytical work on the ASTI data, which is not covered by bilateral sources. In addition, it covers training of researchers to use the tools developed for foresight analysis, technology decision support, and in the area of biosafety.

Flagship 2: Economywide Factors Affecting Agricultural Growth and Rural Transformation

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 2 over the six-year period contributes toward assisting governments in allocating funds for public investments and adopting policy reforms to facilitate agricultural growth, inclusive rural transformation, and job creation, with particular emphasis on opportunities for women and young people. Much of the work will focus on Africa, with special attention to Ethiopia, Ghana, Mozambique, and Tanzania, in addition to broad engagement through the IFPRI Country

Strategy Support Programs in Ethiopia, Ghana, Malawi, Nigeria, and MENA, and through the programs of research and policy support in Myanmar, Cambodia, Thailand, and Nepal (ReSAKSS Asia), Central Asia, and China. IFPRI, CIMMYT, and IWMI contribute to Flagship 2. Non-CGIAR research partners include Michigan State University, University of Hohenheim, Makerere University, Indaba Agricultural Policy Research Institute (Zambia), and FAO. As implied by the list of countries of engagement above, the number of national partners is very large. To reflect the importance of these country partners for achieving outcomes, a specific cluster of activities has been created to host such client-oriented work.

B.1.2 Outputs towards Outcomes 2022

Key components of the work program for Flagship 2 contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Evidence on trends and prospects for agricultural transformation: Michigan State University and CIMMYT will examine the relationships between farm structure, farm size, and productivity in Mozambique and Tanzania. Policy notes will address rural transformation and non-farm income in Ethiopia, and rural wages, agricultural intensification, and rural-urban linkages in Ghana. The book "Structural Change, Fundamentals, and Growth: A Framework and Country Studies" will be published, with a related policy seminar in May 2017.

Policy options for inclusive agricultural transformation: A workshop will contribute to disseminating the findings of the work on mechanization undertaken in Phase 1 to help African countries identify areas for government support to complement private-sector leadership in developing supply chains for machinery; in 2017 a book on this topic will be submitted for peer-review and publication in 2018. The team will produce several chapters for a book on youth employment in rural Africa to be published in 2018.

Social accounting matrices (SAMs) and other datasets for policy analysis: In 2017 SAMs will be updated for five African countries (including Ethiopia, Ghana and Tanzania), two MENA countries (Egypt and Tunisia), and one country in Central Asia (Tajikistan). The investments in enhancing the analytical capacity of government policy units in African and MENA countries will continue, with two workshops on SAMs and/or CGE modeling.

Data and evidence to support better prioritization of public expenditures: Several Discussion papers will present results of research on returns to different types of public expenditures and prioritization of public investments, both at country level and using a cross-country approach. Continued enhancement of the SPEED tool will benefit from collaboration with ongoing partnerships (World Bank and FAO-MAFAP).

Options for organizational and incentive structures to improve the efficiency of public service delivery: Organizational arrangements for public agencies and incentives for their staff that lead to improved delivery of rural public services will be examined. Extension in Malawi and paralegal public services in Tanzania will be among the public services considered.

Analyses of processes of policy change and identification of entry points for influence: A practitioner's guidebook to political economy analysis for food security policy based on the Kaleidoscope Model of Policy Change will be produced. Journal articles and policy briefs will examine political constraints to implementation of land and water management reforms in Nigeria, Uganda, and Nepal.

Capacity building on policy issues in key engagement countries: The Country Strategy Support Programs' teams will continue to build capacity of partners in policy analysis through training and mentoring. In addition, researchers from African countries supported under Cornell University's STAARS capacity building program are expected to generate four publications on policy studies relevant to rural transformation.

B.1.3 Contribution of W1-2 Funds

W1-2 funding contributes to updating public goods such as social accounting matrices and SPEED; new research on farm size and labor dynamics; work on youth employment; generating transnational lessons from Country Strategy Support Programs; south-south learning on mechanization and structural transformation; and implementation of selected studies based on the Kaleidoscope Model political economy analysis conceptual framework.

Flagship 3: Inclusive and Efficient Value Chains

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 3 over the six-year horizon contributes toward reforms in trade policy and regulations, assessment and mitigation of postharvest losses, increased efficiency of value chains resulting in retention by producers of a higher share of the final price, and increased engagement of formerly excluded people in remunerative transactions along value chains. In response to increased attention to trade and the trend toward rising protectionism, work in this area will focus on the distributional impact of proposed trade reforms: winners, losers, and implications for poverty and the SDGs. This work is done by IFPRI in partnership with FAO, OECD, USDA, and World Bank among others. Work on postharvest losses will move from assessment of the magnitude of loss to identifying interventions to reduce it. Work on distortions along value chains and identifying the chains and links with greatest loss will be applied in Nigeria, Tanzania, and Vietnam to facilitate dialogue on remediation. Contributors to the effort on value chain analysis include *inter alia* Bioversity International, CIAT, CIMMYT, CIP, ILRI, Wageningen University, and FAO.

B.1.2 Output towards Outcomes 2022

Key components of the work program for Flagship 3 contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Assessment of value chains of agricultural commodities, and prioritization of problems that weaken them: The Agricultural Incentives Consortium will continue to be supported. The Consortium website will be formally launched, and data updated to include nominal rates of protection for 2015 and 2016. Information developed by the Consortium will be used to assess distortions along value chains in Vietnam, Nicaragua, and Tanzania, with emphasis on the impact of their removal on poverty, including the distributional and gender dimensions.

Tools and analyses of proposed changes in macroeconomic policies and their effects on the agricultural sector: The focus will be on application of general equilibrium modeling tools to simulate impacts of agricultural growth on poverty under various assumptions about distortions nationally and globally. Application of these tools in Rwanda will serve as an example that could be used more generally in the future.

Tools and analyses of the distributional effects of trade reforms, technological innovations, and shocks: This work will be global, and examine the past twenty years of agricultural trade and implications for the poor, agriculture, development, and the global trading system. Additional work will address rising protectionism in the current environment, its impact on agriculture and the poor, and implications of the macroeconomic slowdown for agriculture and the SDGs. The team will also investigate developments in agricultural trade in Africa.

Analyses of postharvest losses and suggested interventions to reduce them: Phase 1 research to develop better measures of postharvest losses will be continued, coupled with assessment of the location of loss along the value chain, and consideration of innovations to reduce loss. Specific studies will focus *inter alia* on maize in Ethiopia, and roots and tubers in Peru, Ecuador, and Uganda. A summary assessment of methods and findings of individual studies on the magnitude and locus of loss will be completed and made available as a discussion paper and through the FAO/IFPRI Technical Platform on Measurement of Loss and Waste.

Validated innovations for improving efficiency and inclusiveness of value chains: Graduate students from developing countries at Wageningen University will be supervised to analyze efficiencies in the maize value chains in East Africa, with emphasis on access to improved technologies, availability of on-farm storage, and options for contractual arrangements. This work will include political economy dimensions to identify barriers to more efficient maize markets. The role of certification in increasing access of small farmers, including women, to markets for cocoa and coffee will be assessed, as will marketing arrangements in the dairy sector in Kenya.

Country-level assessments of the performance of value chains, and strategies for improving efficiency and inclusion: This effort will focus on India, Ethiopia, Nigeria, and Tanzania, and provide a comparative assessment (across commodities and countries) of the magnitude of losses within specific value chains, to assist policy makers in prioritizing remedial measures.

Strategies and options for scaling up value chain innovations: A literature review will be undertaken to identify characteristics of successful innovations in value chains, distinguish a typology of models to scale up success, and assess gaps in knowledge about scaling up. This work will serve as a foundation for future development of a framework to predict success in scaling.

Capacity building on analysis of value chains and to support scaling up of value chain innovations: New results and tools will be posted on the Tools4ValueChains website, and the use of the posted material will be tracked. Regional value chain hubs in Latin America and East Africa will convene the CGIAR value chains community of practice and disseminate tools and methods to implementation partners.

B.1.3 Contribution of W1-2 Funds

In the area of trade, W1-2 funds will allow rapid preparation of publications, policy briefs, and opinion pieces on the rise of protectionism. W1-2 funds provide support to representatives of developing countries participating in global trade negotiations, and in the current round of renegotiation of bilateral and regional agreements. They support development and application of tools to measure postharvest losses and diagnostic assessments of incentive problems and distortions in value chains. Window 1-2 funds are also applied toward convening the CGIAR value chains community of practice, maintaining the tools4valuechains website, and outreach to development partners and training for researchers through the value chains hubs.

Flagship 4: Social Protection for Agriculture and Resilience

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 4 over the six-year period contributes toward assisting governments and their development partners to improve the design of social protection programs, so that targeting is consistent with objectives, instruments of transfer achieve their intended purposes, and features are included to complement transfers and increase impact. In addition, this research contributes to mutual reinforcement between investments in social protection and resources to promote agricultural growth. New approaches to address the chronic excess exposure of poor rural people to risk because of underinsurance are also among the outputs of the flagship. Key planned achievements for 2017 include use of evidence in review of social protection programs in two countries implementing large programs (Ethiopia and Mali), new knowledge on the relationship between agricultural growth and social protection in two countries (Mali and Bangladesh), and testing of new approaches to insurance in three countries (India, Bangladesh, and Kenya). Major partners include IFPRI and CIP, government agencies (in Mali and Ethiopia), universities (Cornell, George Washington, University of Washington), research organizations (Institute for Development Studies, Institut de Recherche pour le Développement in Mali, Indira Gandhi Institute of Development Research), international organizations (UNICEF, World Food Program), non-governmental organizations (Borlaug Institute for South Asia, World Vision International), and private firms for the insurance work (HDFC Ergo Ltd – an Indian Insurance company, and Kenyan Equity Bank).

B.1.2 Outputs towards Outcomes 2022

Key components of the work program for Flagship 4 contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Evidence on effectiveness of social protection mechanisms for improving agriculture: The team will publish a journal article on the impact of transfer payments on acquisition of agricultural assets and labor use in Mali. A discussion paper will take stock of knowledge about linkage between agricultural performance and social protection, and suggest new ways to enhance complementarity. Opportunities to link social protection with climate-smart agriculture through behavior-change communication and to use social protection to increase resilience to climate shocks will be explored drawing on evidence from Kenya. Impacts of the Malian social protection (Jigisémèjiri") program on agriculture will be examined. The team will also submit a journal article on the linkage between social protection and agricultural investment at the household level in Bangladesh, expected to be published in 2018.

Evidence on effectiveness of social protection mechanisms for improving nutrition and other outcomes: The team will continue to probe how the effectiveness of social protection can be improved by pairing it with complementary interventions, such as behavior-change communication, nutrition services, and training to increase employability (particularly for young people). In addition to examining the impact of social protection on primary outcomes such as household consumption, poverty, and food security, research will explore the impact on women's time use, on intimate partner violence within the household, and on labor supply. Country focus will be on Bangladesh, India, Ethiopia, and Mali.

Recommendations for improving design and delivery of social protection programs: Based on evidence drawn from work described above, recommendations will be made to improve the

design of social protection programs by including complementary services together with transfers, adjusting the modalities of transfer, changing the design of school meal programs, and modifying the design of disaster relief programs. The teams work closely with implementation partners responsible for large public programs in Ethiopia, Bangladesh, and Mali, and findings are relevant to programs in other countries.

Evidence of demand for different risk management products by smallholder farmers: Innovative insurance instruments will be designed and tested. In India and Bangladesh, the team will focus on picture-based insurance (PBI) products with rapid, inexpensive loss assessments on the basis of periodic geo-referenced pictures of insured crops taken by farmers. Researchers will test whether PBI generates higher demand by reducing basis risk and increasing farmers' participation in the insurance process. Appeal of the products to farmers of different age groups will be examined to assist in targeting dissemination.

Recommendations for risk management products for smallholder farmers:
Based on findings regarding the demand for and performance of various innovative risk management products, the team will address the roles of the public and private sectors, explore mechanisms, costs, and returns to public investments and/or subsidy levels, and provide options and recommendations to partners in the public and private sectors regarding introduction of new products. 2017 deliverables will include published analysis of insurance and risk management instruments for smallholders in Nigeria and Kenya, and a cross-regional workshop on high-quality and innovative risk management tools for the poor (India, Bangladesh, Kenya).

B.1.3 Contribution of W1-2 Funds

W1-2 funds facilitate rigorous analysis of social protection modalities in greater depth than development agencies would undertake or fund on their own. In this way, W1-2 funding leverages practical experience into highly regarded global public goods. In particular, it permits inquiry into the linkage between social protection and agriculture – a topic of considerable interest to CGIAR, and which the ISPC has strongly encouraged PIM to undertake, but which is outside the remit of many agencies funding large social protection programs. W1-2 funding for work on insurance allows design and piloting of new instruments suitable for smallholders that private firms may subsequently take to scale.

Flagship 5: Governance of Natural Resources

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 5 over the six-year period contributes toward design and adoption of evidence-based reforms in natural resource governance and policy, with resulting improved security of tenure (primarily of land) for poor communities and individuals, both men and women. The flagship also contributes to new approaches to management of shared resources to address competing interests, secure benefits for poor and underrepresented people, and reduce the likelihood of conflict over resources. Key planned achievements for 2017 include creation and use of a toolbox of methods for tenure research, development of an M&E system to track progress on tenure reforms in Africa, testing and uptake of conservation incentive mechanisms, and analysis of competing interests and relevant institutional mandates in managing natural resources in Peru and India, with associated development of options for shared management and training for participants. Contributing CGIAR Centers include Bioversity International, CIFOR, ICARDA, ICRAF, ICRISAT, IFPRI, ILRI, IWMI, and WorldFish. Major external partners include government agencies (in Laos, Myanmar, Nepal, Nigeria, Uganda, and Vietnam), universities (Makerere,

National University of Laos), research organizations (Ethiopian Development Research Institute, Vietnam Forest Academy, World Resources Institute), international organizations (Land Policy Initiative of the African Union Commission, World Bank), and non-governmental organizations (International Land Coalition, Foundation for Ecological Security, National Organization of Community Forestry, Guatemala).

B.1.2 Outputs towards Outcomes 2022

Key components of the work program for Flagship 5 contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Flagship 5 undertakes analyses of tenure and governance of natural resources and generates options for decision makers to consider. It also develops methods and tools for use by both implementation and research actors, and strengthens their capacity to use them. The major outputs for 2017 are described below; most of them include a strong focus on gender.

Analysis of the effects of tenure, tenure reforms, and governance models and institutions: Several planned journal articles relate to forest resources: on the performance of the traditional Adat institution in Indonesia, on the successes and failures of community forestry in Central America, and on the effectiveness of Green Development and REDD in promoting inclusive land use planning. Another journal article will examine effects of rangeland tenure reforms in Tunisia. The theme of biodiversity conservation and cross-border protocols between Kenya and Somalia will be the topic of a policy brief. Journal articles will be published on effects of land access on multiple outcomes in Ethiopia and perceived land tenure security and agricultural transformation in Nigeria. An M&E system to monitor tenure reforms in Africa will be developed jointly with the Land Policy Initiative of the African Union Commission.

Options to strengthen community and individual tenure security: Several outputs build on prior analyses and focus on options for strengthening tenure security, such as a policy brief on the factors of success in community concessions in Petén, Guatemala, and analysis of policy options for tenure reform on rangeland in Tunisia. A journal article will examine tenure security issues as they relate to rural transformation in Ghana.

Options to address challenges of coordination and enhance shared governance: A policy brief will be developed on identifying entry points for integrated landscape planning in situations where a number of institutions and agencies must cooperate.

Methods for improving collective action at the community level: Simulation and games have been found to be effective in promoting collective action for natural resource governance at the community level. These methods will be further refined in 2017, and training materials will be developed and tested in India and Tanzania.

Research methods for and capacity building in tenure security: Innovative research methods will be developed, such as iteration between qualitative and quantitative methods to identify suitable indicators of tenure security that apply to collective resources. Data, models and tools for studying rangeland tenure reform in Tunisia will be finalized and disseminated, including through a workshop.

W1-2 supports rigorous M&E and impact assessment of the work of partners in the area of tenure reform; the development of an M&E system for the Land Policy Initiative of the African Union Commission (which will yield final outputs in 2018) is an example. Moreover, most agencies work on land rights in isolation from rights to other resources, such as trees and water, whereas the PIM W1-2 funding allows capture of the interdependence of tenure rights. Much of the work on management of landscapes is highly descriptive and context-specific, making it difficult to draw generalizable and actionable conclusions. In this area the W1-2 resources are used to develop a stronger and readily applicable conceptual framework for assessment of governance arrangements for shared resources. W1-2 funds also facilitate outreach of findings to the development and policy communities.

Flagship 6: Cross-cutting Gender Research and Coordination

B.1.1 Expected Annual Milestones towards Outcomes 2022

The work of Flagship 6 over the six-year period contributes toward gender equity by generating evidence on how interventions (reforms and investments) can facilitate inclusion and empowerment of women. The flagship also contributes toward increased capacity for gender research in CGIAR and of partners through development of tools and methods, training and sharing of knowledge, and facilitating work across CRPs. Key planned achievements in 2017 include continued refinement and application of the Women's Empowerment in Agriculture Index (WEAI), development of new methods for analysis of joint decision making by spouses, and effective launch and management of the CGIAR Collaborative Platform for Gender Research. All CGIAR Centers and CRPs participate in the CGIAR Collaborative Platform for Gender Research. External partners for the gender research include *inter alia* FAO, World Bank, Nepal School of Social Sciences and Humanities, Oxford University, KIT, and the University of Arizona.

B.1.2 Outputs towards Outcomes 2022

Key components of the work program for Flagship 6 contributing to outputs and milestones for 2017 are described below. Please refer to Table 4 for information on the contribution of the outputs to the 2022 outcomes.

Evidence on the gender gap in productivity, and assessments of interventions to reduce it: The team will continue to challenge widely held but poorly substantiated beliefs about the role of gender in food security, following upon insights into women's ownership of land developed during Phase 1. Journal articles will be published on gender myths and food security and on women's empowerment and agricultural productivity in Bangladesh. A discussion paper will address women's empowerment and adoption of new maize technologies in East Africa. Building on findings from the Women's Empowerment in Agriculture Index, the team will move beyond an exclusive focus on women to examine interactions between women and men in decision making, particularly in spousal relationships. This work will include analysis of the dairy industry in Senegal and mixed farming regimes in Latin America.

Policy recommendations to increase inclusiveness of rural transformation and improve opportunities for women and girls in transforming countries: Work on gender, family status over the life cycle, and land ownership in four Asian countries will be published. Additional work on gender, ownership, and decision making in Bangladesh and Nepal will be undertaken. Ongoing analysis of data on land ownership and management and control of outputs in Africa will be

published. A discussion paper on the impact of mechanization in agriculture on women's welfare will be completed. Work on the impact of migration on women and young people (both men and women) in the context of rural transformation will be expanded.

Datasets, innovative methods for gender analysis, methodological guidelines, and training: Much of the research described above entails collection of new sex-disaggregated data and development of new methods of analysis. Work on tools and methods initiated in Phase 1 will continue. Discussion papers on approaches to measuring ownership, control, and use of assets, time use, and cooperation between spouses will be produced and shared through the CGIAR Collaborative Platform on Gender Research. Refinement of the WEAI will continue, together with analysis of the findings from application of the index. Applications of new techniques for measurement of women's autonomy in Bangladesh and Ghana will be published. Gender-disaggregated household survey data on agriculture, nutrition, and migration in Tajikistan will be analyzed.

Web-based gender platform and associated tools, trainings, and communications products: The work program of the Coordinator of the CGIAR Collaborative Platform on Gender Research (based at KIT in the Netherlands) includes setting up a website for the platform, organizing a workshop and webinars for building the capacity of the CGIAR Gender Network, fostering adherence to the [Standards for sex-disaggregated data collection](#), and issuing a newsletter and other communications products. This work program will be expanded as additional resources become available.

Inventory of gender research and tools across CRPs and identification of research priorities: Among the objectives of the CGIAR Collaborative Platform for Gender Research is clarification of priorities for gender research across the System. In a consultation to inform design of the Platform held in October, 2016, four priorities were identified: (i) gender, technology, and institutions; (ii) ownership and decision making; (iii) gender, landscapes, and transformation; and (iv) gendered consequences of technical change in agriculture. In 2017 one of these themes will be selected for assembly of a CGIAR-wide effort to draw insights from across the System for a research conference and special issue of a journal or volume.

B.1.3 Contribution of W1-2 Funds

The high ratio of deliverables to funding in Flagship 6 is due in part to the flagship's "parallel financing" funding model. In many cases, the flagship team is able to join other research efforts or investment projects that are separately funded. With modest incremental funding, all of which comes from W1-2, gender issues related to agricultural productivity or rural transformation for instance can be examined in depth. Thus, the Flagship 6 W1-2 funding leverages other funding that does not appear as bilateral/W3 support within Flagship 6. Work on the Women's Empowerment in Agriculture Index has bilateral funding, but the other activities rely almost exclusively on W1-2. In 2017, W1-2 funds in Flagship 6 are the sole source of funding for the CGIAR Collaborative Platform for Gender Research – which, unlike the three other systemwide platforms, does not have dedicated funding. Efforts are under way to generate additional bilateral support as of 2018 for development of new tools and data, to expand the work of the Platform, and to provide coordinated gender analysis in CGIAR countries of collaboration.

Table 2: Contribution to Sub-IDOs and associated indicators

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP1	Closed yield gaps	# organizations using improved targeting or dissemination methods for agricultural technology	25
	Increased conservation and use of genetic resources	# countries with strengthened policy or regulatory frameworks for genetic resources	3
	Improved forecasting of impacts of climate change and targeted technology development	# organizations using improved foresight models incorporating climate change	4
	Technologies that reduce women's labor and energy expenditure developed and disseminated (joint with FP6)	Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Increased capacity of partner organizations as evidenced by rates of investment in agricultural research (joint with FP2)	Expenditure on national agricultural R&D (from ASTI data)	Baseline established from existing data
	Conducive agricultural policy environment (joint with FP2-3-5-6)	# policy oriented knowledge sharing events with policy makers	10 (joint with FP2-3-5-6)
		# policy and regulatory reforms supported by scientific evidence from PIM in target countries	5 (joint with FP2-3-5-6)
	Enhanced institutional capacity of partner research organizations (joint with FP2-3-4-6)	% PIM projects with national research partners	75 (joint with FP2-3-4-6)
		# partner organizations who use PIM learning materials and approaches	No 2017 target – collected every two years from 2018
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP2-3-4-5-6)	# researchers trained in PIM research methods/tools	850 (joint with FP2-3-4-5-6)

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP2	Increased livelihood opportunities (joint with FP3)	Proportion of rural household income from non-farm sources	No target in 2017 – collected in collaboration with SPIA/ other CRPs
	Gender equitable control of productive assets and resources (joint with FP3-4-5-6)	# tenure security interventions validated for equity effects	2 (joint with FP3-4-5-6)
		Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Improved capacity of women and young people to participate in decision making (joint with FP4-6)	Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Increased capacity of partner organizations as evidenced by rates of investment in agricultural research (joint with FP1)	Expenditure on national agricultural R&D (from ASTI data)	Baseline established from existing data
	Conducive agricultural policy environment (joint with FP1-3-5-6)	# policy oriented knowledge sharing events with policy makers	10 (joint with FP1-3-5-6)
		# policy and regulatory reforms supported by scientific evidence from PIM in target countries	5 (joint with FP1-3-5-6)
	Enhanced institutional capacity of partner research organizations (joint with FP1-3-4-6)	% PIM projects with national research partners	75 (joint with FP1-3-4-6)
		# partner organizations who use PIM learning materials and approaches	No 2017 target – collected every two years from 2018
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP1-3-4-5-6)	# researchers trained in PIM research methods/tools	850 (joint with FP1-3-4-5-6)

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP3	Improved access to financial and other services (joint with FP4)	# farmers using insurance/financial products improved by PIM	No target in 2017 – collected in 2019 and 2022
	Reduced market barriers	# of value chains (commodity by country) strengthened with interventions to reduce barriers	3
	Increased livelihood opportunities (joint with FP2)	Proportion of rural household income from non-farm sources	No target in 2017 – collected in collaboration with SPIA/other CRPs
	Increased value capture by producers	Producer price as percentage of retail price for target commodities and countries	Baseline established from existing data
	Reduced pre and post-harvest losses	Commodity x country combinations where interventions to address post-harvest loss are being used	No 2017 target – collected in 2019 and 2022
	Gender equitable control of productive assets and resources (joint with FP2-4-5-6)	# tenure security interventions validated for equity effects	2 (joint with FP2-4-5-6)
		Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Conducive agricultural policy environment (joint with FP1-2-5-6)	# policy oriented knowledge sharing events with policy makers	10 (joint with FP1-2-5-6)
		# policy and regulatory reforms supported by scientific evidence from PIM in target countries	5 (joint with FP1-2-5-6)
	Enhanced institutional capacity of partner research organizations (joint with FP1-2-4-6)	% PIM projects with national research partners	75 (joint with FP1-2-4-6)
		# partner organizations who use PIM learning materials and approaches	No 2017 target – collected every two years from 2018
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP1-2-4-5-6)	# researchers trained in PIM research methods/tools	850 (joint with FP1-2-4-5-6)

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP4	Increased household capacity to cope with shocks	# countries where governments/development organizations are using improved social protection delivery mechanisms	6
		# households covered by social protection programs that benefited from input from PIM	7,000,000
		# farmers using insurance/financial products improved by PIM	No target in 2017 – collected in 2019 and 2022 (joint with FP3)
	Improved access to financial and other services (joint with FP3)	# farmers using insurance/financial products improved by PIM	No target in 2017 – collected in 2019 and 2022 (joint with FP3)
	Increased access to diverse nutrient rich foods	# households covered by social protection programs that benefited from input from PIM	7,000,000
	Gender equitable control of productive assets and resources (joint with FP2-3-5-6)	# tenure security interventions validated for equity effects	2 (joint with FP2-3-5-6)
		Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Improved capacity of women and young people to participate in decision making (joint with FP2-6)	Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Conducive environment for managing shocks and vulnerability	# countries where governments/development organizations are using improved social protection delivery mechanisms	6
	Enhanced institutional capacity of partner research organizations (joint with FP1-2-3-6)	% PIM projects with national research partners	75 (joint with FP1-2-3-6)
		# partner organizations who use PIM learning materials and approaches	No 2017 target – collected every two years from 2018
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP1-2-3-5-6)	# researchers trained in PIM research methods/tools	850 (joint with FP1-2-3-5-6)

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP5	Increased access to productive assets, including natural resources	# countries tracking progress towards tenure policy reforms	3
		# countries with strengthened natural resource tenure policies	No target for 2017 – collected in 2018 and every two years
	More productive and equitable management of natural resources	# communities with more secure rights or using improved models for managing shared resources	250
	Gender equitable control of productive assets and resources (joint with FP2-3-4-6)	# tenure security interventions validated for equity effects	2 (joint with FP2-3-4-6)
		Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Conducive agricultural policy environment (joint with FP1-2-3-6)	# policy oriented knowledge sharing events with policy makers	10 (joint with FP1-2-3-6)
		# policy and regulatory reforms supported by scientific evidence from PIM in target countries	5 (joint with FP1-2-3-6)
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP1-2-3-4-6)	# researchers trained in PIM research methods/tools	850 (joint with FP1-2-3-4-6)
	Increased capacity for innovation in partner development organizations	# groups and multistakeholder platforms facilitated by PIM	No 2017 target – collected every two years from 2018
		# partner development organizations implementing tenure or governance innovations tested by PIM	No 2017 target – collected every two years from 2018

FP No.	Mapped and contributing to Sub-IDO	Relevant CRP sub-IDO indicators	2017 target
FP6	Gender equitable control of productive assets and resources (joint with FP2-3-4-5	# tenure security interventions validated for equity effects	2 (joint with FP2-3-4-5)
		Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Technologies that reduce women's labor and energy expenditure developed and disseminated (joint with FP1)	Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Improved capacity of women and young people to participate in decision making (joint with FP2-4)	Women's empowerment in agriculture index in target countries	Baseline established from existing data
	Conducive agricultural policy environment (joint with FP1-2-3-5)	# policy oriented knowledge sharing events with policy makers	10 (joint with FP1-2-3-5)
		# policy and regulatory reforms supported by scientific evidence from PIM in target countries	5 (joint with FP1-2-3-5)
	Enhanced institutional capacity of partner research organizations (joint with FP1-2-3-4)	% PIM projects with national research partners	75 (joint with FP1-2-3-4)
		# partner organizations who use PIM learning materials and approaches	No 2017 target – collected every two years from 2018
	Enhanced individual capacity in partner research organizations through training and exchange (joint with FP1-2-3-4-5)	# researchers trained in PIM research methods/tools	850 (joint with FP1-2-3-4-5)

Table 3: Expected annual milestones (progress markers) towards outcomes 2022

PIM FP1: Technological Innovation and Sustainable Intensification

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP1	Foresight models and results are used by 12 regional and national research organizations or government agencies in Africa, Asia and Latin America and global development organizations as inputs to their priority-setting (includes capacity development)	Updated foresight modeling data, tools and analyses are used by CRPs and CGIAR Centers	972,900	2,071,662
	Studies on policies, regulations, and investment in support of agricultural science, technology, and innovation are used by key government entities in 3 CGIAR countries of collaboration (includes capacity development)	Advancement of biosafety regulatory frameworks at national level through passage of biosafety acts, passage of regulations to enable testing and release, and other measures.	1,167,480	2,485,994
	Budget allocations for agricultural research exceed projections of the 2012-2016 trend in 5 CGIAR countries of collaboration (includes capacity development)	Data and analyses of agricultural R&D are used in strategies and programming decisions in national agricultural research organizations	778,320	1,657,330
	In 3 CGIAR countries of collaboration, adoption of selected promising technologies and management practices is 20% above counterfactual without supportive technology dissemination innovations and policies (includes capacity development)	Implementation partners use research results on innovative dissemination methods for agricultural technology	972,900	2,071,662

PIM FP2: Economywide Factors Affecting Agricultural Growth and Rural Transformation

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP2	Governments in at least 3 CGIAR countries of collaboration use tools and evidence on the economy-wide factors affecting rural transformation to develop policies that are better targeted towards raising agricultural growth and rural incomes (includes capacity development)	Evidence on the constraints and opportunities for raising agricultural growth and rural incomes considered by governments via policy fora in 2 CGIAR countries of collaboration	1,185,750	4,529,836
		Government policy analysis units in 2 CGIAR countries of collaboration receive training on data and tools to evaluate the economywide factors affecting agricultural and rural policies		
	Governments in at least 3 CGIAR countries of collaboration use empirical evidence and quantitative methods to modify their allocation of public resource towards better targeted investments favoring inclusive agricultural growth and rural transformation (includes capacity development)	Evidence on the ways that alternative (agricultural and non-agricultural) public expenditures and public services contribute to agricultural development and rural welfare considered by governments and civil society via policy fora in 1 CGIAR country of collaboration	790,500	3,019,891
	Agricultural growth and rural incomes are increased (above counterfactual trend) in 3 CGIAR countries of collaboration implementing evidence-based policies and/or public expenditure allocations (includes capacity development)	*No milestone in 2017.*	658,750	2,516,576

PIM FP3: Inclusive and Efficient Value Chains

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP3	Evidence is used to support changes in trade policy and/or regulations with global and regional implications in 3 instances (includes capacity development)	Evidence is used to support changes in trade policy and/or regulations with global and regional implications in 1 instance	687,000	816,992
	Research and development organizations use PIM tools to address postharvest losses in 10 countries, including 5 CGIAR countries of collaboration (includes capacity development)	Postharvest losses by source are quantified, leading to prioritization of actions in priority value chains in CGIAR countries of collaboration	687,000	816,992
	Research and development organizations use PIM tools for value chain analysis and development in 20 instances in 6 CGIAR countries of collaboration (includes capacity development)	The main distortions in international and national markets and priority interventions for major 5 value chains in CGIAR countries of collaboration are identified	1,202,250	1,429,736
	Implementation partners in three countries use analysis of approaches to scaling to increase numbers of beneficiaries by 50% in designated projects (includes capacity development)	*No milestone in 2017.*	515,250	612,744
	Earnings of smallholder male and female farmers from specific value chains increase by 20% as a result of interventions in these value chains in 3 CGIAR countries of collaboration (includes capacity development)	*No milestone in 2017.*	343,500	408,496

PIM FP4: Social Protection for Agriculture and Resilience

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP4	National social protection programs and policies are modified based on evidence in 4 countries, including 3 CGIAR countries of collaboration (includes capacity development)	Evidence is used in policy discussions of national social protection programs and policies in 2 CGIAR countries of collaboration	594,080	1,727,375
	Improved social protection innovations provide food and nutrition benefits to poor households in 3 countries (includes capacity development)	New social protection implementation mechanisms are tested in 2 CGIAR countries of collaboration	519,820	1,511,453
	New insurance products are being used by smallholder farmers in 3 countries, including 2 CGIAR countries of collaboration (includes capacity development)	New insurance products are tested at scale with implementation partners in 1 CGIAR country of collaboration	371,300	1,079,610

PIM FP5: Governance of Natural Resources

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP5	Evidence informs natural resource governance and tenure policy processes/implementation in 12 countries, including 6 CGIAR countries of collaboration (includes capacity development)	The toolbox of methods for tenure research is used by researchers	657,060	1,085,949
		An M&E system to track progress towards tenure security policy reforms is operationalized in 3 African countries		
	Tenure security is improved for beneficiaries in 6 countries, with detailed documentation for 2 (includes capacity development)	In collaboration with policy makers, innovative tenure security-enhancing innovations are tested across relevant contexts in 2 CGIAR countries of collaboration	657,060	1,085,949
	Improved landscape-level governance arrangements are implemented in 6 countries, with more productive and equitable management in at least 2 (includes capacity development)	Opportunities for landscape governance work across CRPs are agreed upon and initiated	876,080	1,447,932

PIM FP6: Cross-cutting Gender Research and Coordination

FP No.	FP Outcome 2022	Milestone 2017 Max. of 3 milestones per FP outcome 2022	Mapped budget request for 2017 ($)	
			W1-2	W3/bilateral
FP6	National researchers use improved gender research methods in 5 CGIAR countries of collaboration (includes capacity development)	PIM gender research methods and guidelines are used by CGIAR researchers and partner research organizations in 3 CGIAR countries of collaboration	550,000	684,030
	Gender dimensions of policies are strengthened in 4 CGIAR countries of collaboration (includes capacity development)	Gender equity enhancing recommendations from case studies are synthesized and discussed with policy makers in 2 CGIAR countries of collaboration	330,000	410,418
	The value of indicators of women's empowerment in agriculture increase in 3 CGIAR countries of collaboration (includes capacity development)	Research on effective interventions for empowering women in agriculture is used by 2 implementation partners	220,000	273,612

Table 4: Expected key output 2017 towards outcomes 2022

Note: this table does not include every single deliverable that will be produced, but is rather a synthesis of the key deliverables. *G = gender; Y = youth; CD = capacity development. 0 = not targeted, 1 = significant, 2 = principal*

FP	FP outcomes 2022	Key outputs 2017	G	Y	CD
FP1	Foresight models and results are used by 12 regional and national research organizations or government agencies in Africa, Asia and Latin America and global development organizations as inputs to their priority-setting (includes capacity development)	**Data, models, and tools for foresight analysis** - Updated IMPACT model database - New/updated livestock, fish, and land use change models for IMPACT	0 0	0 0	1 1
		Ex ante empirical analyses at global, regional, and national levels - Journal articles on improved forage and milk production in East Africa; ex-ante evaluation of promising innovations on soybean production and demand in Sub-Saharan Africa under climate change; strategic assessment of research priorities for potato; climate change impacts and potential benefits of drought and heat tolerance in pearl millet for adapting to climate change; spatial assessment of C4 rice; light and water-use efficiency model optimization for large area crop yield estimation - Monographs on climate change, agriculture, and food security in Central Asia and Latin America	0 0	0 0	1 1
		Capacity building in foresight analysis - IMPACT training courses and training materials	0	0	2
		Outreach for decision support in foresight - Policy dialogues with donors, national partners, CGIAR system entities (including one on the West African Agricultural Productivity Programme) - Upgraded IMPACT model web tool and Global Futures website	0 0	0 0	1 2
	Studies on policies, regulations, and investment in support of agricultural science, technology, and innovation are used by key government entities in 3 CGIAR countries of collaboration (includes capacity development)	**Recommendations on policy/regulatory reforms to support the release & distribution of improved cultivars** - Journal article on policy options for accelerating varietal turnover - Journal article on country case studies of seeds systems for vegetatively propagated crops	0 1	0 1	0 0
		Recommendations on policy options for innovations in science and technology - Journal articles on genetically modified crops and patent expirations; impact of intellectual property rights disputes on small-scale farmers; policy and regulatory implications of new technology in maize and wheat - Workshop on assessing the economic impact of a changing landscape on genetic resources policy - Briefing papers on economic assessments in GM crops in five Africa countries	0 0 0	0 0 0	0 2 1
		Capacity building for design and implementation of policies for science, technology, and innovation - Training materials for analysis of sustainable intensification strategies - Training materials on the ex ante technology targeting framework for SRO partners - Africa-China conference for South-South learning	0 0 0	0 0 0	2 2 2

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP1 (ctd)	Budget allocations for agricultural research exceed projections of the 2012-2016 trend in 5 CGIAR countries of collaboration (includes capacity development)	**Data, analysis, and evidence to increase the impact of agricultural R&D on productivity growth** - Updated ASTI datasets for SSA - Updated database on GM crops	1 0	1 0	1 0
	In 3 CGIAR countries of collaboration, adoption of selected promising technologies and management practices is 20% above counterfactual without supportive technology dissemination innovations and policies (includes capacity development)	**Evidence and recommendations on how to better deliver agricultural extension and advisory services** - Journal article on overcoming challenges in the implementation of a randomized controlled trial in an extension project	1	1	1
		Tools and methods for decision support on agricultural technology and sustainable intensification - Journal articles on assessing tradeoffs around sustainable intensification options in Malawi - Generic household model for analysis of sustainable intensification strategies - Discussion paper on gendered perspective on sustainable intensification - Journal article on ex ante bioeconomic assessments of scenarios for achieving food security	0 0 2 1	0 0 0 1	0 1 0 1

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP2	Governments in at least 3 CGIAR countries of collaboration use tools and evidence on the economy-wide factors affecting rural transformation to develop policies that are better targeted towards raising agricultural growth and rural incomes (includes capacity development)	**Evidence on trends and prospects for agricultural transformation** - Journal article on farm structure, farm size, and productivity in Mozambique - Journal article on farm size and investment in agricultural value chains in Tanzania - Workshop on smallholder agricultural mechanization - Two journal articles on growth and transformation in Africa - Policy notes on rural transformation and non-farm income in Ethiopia; and rural wages, agricultural intensification, and rural-urban linkages in Ghana - Journal article on measuring employment in the agrifood system in Africa - Book "Structural Change, Fundamentals, and Growth: A Framework and Country Studies"	1 1 1 0 0 1 0	0 1 0 1 1 1 1	0 1 2 0 0 0 0
		Policy options in support of inclusive agricultural transformation - Discussion Papers on demand for agricultural mechanization in Nigeria and Ghana - Book chapters on policies for rural youth employment, migration and youth employment, economic growth and employment in SSA, and country studies (Bangladesh, Brazil, Ethiopia, Ghana, Malawi, Senegal, Tanzania)	0 1	0 2	1 1
		Social accounting matrices and other datasets for policy analysis - Updated SAMs for five SSA countries (incl. Ethiopia, Ghana and Tanzania), two MENA countries (Egypt and Tunisia), and one country in Central Asia (Tajikistan) - SAM and/or CGE modeling workshops in two African or MENA countries; CGE modeling training courses manuals for Ethiopia	1 0	1 0	0 2
		Analyses of processes of policy change and identification of entry points for influence - Practitioner's guide on the Kaleidoscope Model - Journal article on application of the Kaleidoscope Model to food security policy in Zambia; the political economy of Nigerian land governance reforms; street level bureaucrats in Nepal - Journal article on power, contestations and collective actions issues in reforming water management in Uganda - Book chapter on Nepal's governance structure and implications for agricultural development - Policy brief on political economy of implementation of Integrated Water Resource Management in Uganda	0 0 1 0 1	0 0 0 0 0	2 0 0 0 1
		Capacity building on policy issues in key engagement countries - Working papers from post-doc mentoring and support program in Nigeria - Policy analysis training in Nigeria - Training course materials on policy analysis in Ghana - Two training courses on applied econometrics in Central Asia - Four publications on policy studies relevant to rural transformation authored by researchers supported under Cornell University's STAARS capacity building program	0 0 0 0 1	0 0 0 0 0	2 2 2 2 0

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP2 (ctd)	Governments in at least 3 CGIAR countries of collaboration use empirical evidence and quantitative methods to modify their allocation of public resource towards better targeted investments favoring inclusive agricultural growth and rural transformation (includes capacity development)	**Data and evidence to support better prioritization of public expenditures** - SPEED data manual - Discussion Papers on effect of public investments on performance in the maize sector (with MAIZE); returns to different types of public expenditure in developing countries; impact of public investments in Egypt; complementarity of public and private services in Mozambique; prioritizing public agriculture expenditure in Kenya	0 1	0 1	2 1
		Options for organizational and incentive structures to improve the efficiency of public service delivery - Journal article on the effectiveness of gender-sensitive and community-based paralegal public services on outcomes for women in Tanzania - Journal article on incentives in service provision to rural youth in Uganda - Workshop on information for more responsive public service delivery	2 1 1	0 2 1	1 1 2
	Agricultural growth and rural incomes are increased (above counterfactual trend) in 3 CGIAR countries of collaboration implementing evidence-based policies and/or public expenditure allocations (includes capacity development)	*Also reported under outcome "Governments in at least 3 CGIAR countries of collaboration use tools and evidence on the economy-wide factors affecting rural transformation to develop policies that are better targeted towards raising agricultural growth and rural incomes (includes capacity development)":* - Two journal articles on growth and transformation in Africa - Policy notes on rural transformation and non-farm income in Ethiopia; and rural wages, agricultural intensification, and rural-urban linkages in Ghana - Journal article on measuring employment in the agrifood system in Africa - Book "Structural Change, Fundamentals, and Growth: A Framework and Country Studies" - Book chapters on policies for rural youth employment, migration and youth employment, economic growth and employment in SSA, and country case studies (Bangladesh, Brazil, Ethiopia, Ghana, Malawi, Senegal and Tanzania)	0 0 1 0 1	1 1 1 1 2	0 0 0 0 1

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP3	Evidence is used to support changes in trade policy and/or regulations with global and regional implications in 3 instances (includes capacity development)	**Tools and analyses of the distributional effects of trade reforms, technological innovations, and shocks** - Two journal articles on price distortions - IFPRI book on agriculture, development, and trade 2000-2015 - Journal articles on impact of rising protectionism on world poverty; 20 years of agricultural trade liberalization: challenges and opportunities for the poor; consequences of long-term agricultural price variation for the poor; the global macroeconomic slowdown and the SDGs; global Impacts of the US tax reform and implications for the poor in developing countries - WTO-World Bank book chapter on WTO trade liberalization - 2 regional workshops (Western Africa, Eastern and Southern Africa) on measurement of international trade	0 0 0 0 0	0 0 0 0 0	0 0 0 0 1
		Assessment of value chains of agricultural commodities, and prioritization of problems - Updated database of the Ag-Incentives Consortium, including 2015 and 2016 NRP data; various datasets and technical notes on the Ag-Incentives methodologies - Journal article on gender dimensions of agricultural distortions - Policy brief on the Ag-Incentives Consortium and its findings - Publicly accessible Ag-Incentives website, and high-level policy dialogue for the launch of this website - Research workshop of the Ag-Incentives Consortium - Training workshop on the Ag-Incentives methodology for African researchers and policymakers	0 2 0 0 0 0	0 0 0 0 0 0	0 0 1 1 2 2
		Tools and analyses of proposed changes in macroeconomic policies and their effects on the agricultural sector - Policy brief to support developing country delegations at the WTO Ministerial Conference in Buenos Aires Training materials and lecture on metrics and tools for National Agricultural Investment Plans design, appraisal, and tracking	0 0	0 0	1 2
	Research and development organizations use PIM tools to address postharvest losses in 10 countries, including 5 CGIAR countries of collaboration (includes capacity development)	**Analyses of postharvest losses and suggested interventions to reduce them** - Journal article on quantitative assessment of postharvest losses in potato value chains in Peru and Ecuador - Database on postharvest losses in the sweet potato value chain in Uganda - Dialogue/workshop report on postharvest losses in the sweet potato value chain in Uganda and potato value chains in Peru and Ecuador - Preliminary diagnostic assessment of loss in maize value chains in Ethiopia - Literature review and preliminary diagnostics for identifying crops and agroecological zones with high losses; dataset on crop loss assessment on identified crops and zones - Synthesis of findings of the Phase 1 work on postharvest losses, to be used as input for the FAO-IFPRI Technical Platform on the Measurement and Reduction of Food Losses and Waste and for the G20's First Annual Agricultural Deputies Meeting (planned for end 2017)	1 1 1 0 0 0	0 0 0 0 0 0	0 0 1 0 0 0

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP3 (ctd)	Research and development organizations use PIM tools for value chain analysis and development in 20 instances in 6 countries of CGIAR collaboration (includes capacity development)	**Validated innovations for improving efficiency and inclusiveness of value chains** - Policy briefs on the effect of cash transfers in promoting participation of poor smallholders in value chains in Senegal and Malawi - Policy brief on public-private collaboration for achieving a sustainable cocoa sector in Ghana - Journal article on the role of certification systems and responsible finance for achieving a sustainable cocoa sector in Ghana	0 0 0	0 0 0	0 1 0
		Country-level assessments of the performance of value chains, and strategies for improving efficiency and inclusion - Journal article and policy brief on distortions to agricultural incentives in India: evidence from agricultural value chains - Database and model for analysis of impact of distortions through scenario analysis for Indian oilseeds and biofuels value chains - Discussion Papers on analysis of distortions along and within value chains in Ethiopia, Nigeria, and Tanzania	0 0 0	0 0 0	0 0 0
		Capacity building on analysis of value chains - Tools for measuring agricultural distortions along value chains for CGIAR centers, posted on tools4valuechains website	1	0	2
	Implementation partners in three countries use analysis of approaches to scaling to increase numbers of beneficiaries by 50% in designated projects (includes capacity development)	**Strategies and options for scaling up value chain innovations** - Publications on review of the uptake of the LINK method through the Central American learning alliance published in a working document and journal article, and development of scaling strategies for climate resilient coffee and cocoa value chains in Central America - Discussion Paper on scaling approaches for agricultural technologies, processes and policies	1 0	0 0	0 0
		Capacity building to support scaling up of value chain innovations - Regional value chain hubs in Latin America and East Africa, with M&E plans - Value chains community of practice, with two convenings through the hubs; other trainings and workshops organized by the hubs	0 0	0 0	2 2
	Earnings of smallholder male and female farmers from specific value chains increase by 20% as a result of interventions in these value chains in 3 CGIAR countries of collaboration	*Also reported under outcome "Research and development organizations use PIM tools for value chain analysis and development in 20 instances in 6 countries of CGIAR collaboration":* - Journal article and policy brief on distortions to agricultural incentives in India: evidence from agricultural value chains - Database and model for analysis of impact of distortions through scenario analysis for Indian oilseeds and biofuels value chains - Discussion Papers on analysis of distortions along value chains in Ethiopia, Nigeria, and Tanzania	0 0 0	0 0 0	0 0 0

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP4	National social protection programs and policies are modified based on evidence in 4 countries, including 3 CGIAR countries of collaboration (includes capacity development)	**Evidence on effectiveness of social protection mechanisms for improving agriculture** - Journal article on the Impact of transfers on agricultural assets, input use and labor participation in agriculture in Mali - Discussion paper on patterns of public expenditure in social protection and agriculture - Journal article on social protection and vulnerability to climate change in Kenya - Policy workshop to disseminate findings from midline survey of the Mali Jigisémèjiri Program	1 1 1 1	0 0 1 0	1 0 0 1
	Improved social protection innovations provide food and nutrition benefits to poor households in 3 countries (includes capacity development)	**Recommendations for improving design and delivery of social protection programs** - Workshop on potential to integrate social protection with climate-smart agriculture in root and tuber value chains - Policy report on Improving the design of school meals to expand nutrition impacts	1 1	1 1	2 0
		Evidence on effectiveness of social protection mechanisms for improving nutrition and other outcomes - Validation workshop to present evidence on context for impact for UNICEF Social Cash Transfer project - Journal article on behavior change communication activities and their impact on infant and young child nutrition knowledge and practice of neighboring non-participants in rural Bangladesh - Journal article on measuring women's decision making - indicator choice and survey design experiments from cash and food transfer evaluations in Ecuador, Uganda and Yemen - Journal article on school feeding and anemia prevalence in adolescent girls and other vulnerable household members in a cluster randomized controlled trial in Uganda - Workshop on World Vision Development Food Assistance Program Learning Agenda - Report and policy notes on social protection programs, poverty and nutrition in Ethiopia and Malawi	1 1 2 1 1 1	0 1 0 1 1 0	2 0 0 0 2 0
	New insurance products are being used by smallholder farmers in 3 countries, including 2 CGIAR countries of collaboration (includes capacity development)	**Evidence of demand for different risk-management products by smallholder farmers** - Digital tools for assessment of crop loss at farm level in India and Bangladesh	1	1	1
		Recommendations for risk management products for smallholder farmers - Journal article on Implications of farm households' risk management for consumption-savings decisions and the optimal design of savings instruments in Nigeria - Journal article on health risk management and health insurance products for the agricultural sector - Journal article on farmers' risk management for loyalty to agricultural cooperatives in Kenya - Cross-regional workshop on high-quality and innovative risk management tools for the poor (India, Bangladesh, Kenya)	0 1 1 1	0 1 0 1	0 0 0 2

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP5	Evidence informs natural resource governance and tenure policy processes/implementation in 12 countries, including 6 CGIAR countries of collaboration (includes capacity development)	**Analysis of the effects of tenure and tenure reforms** - Journal article on effects of rangeland tenure reforms in Tunisia - Journal article on success and failure of community forestry in Guatemala and Nicaragua - Journal articles on effects of land access on multiple outcomes in Ethiopia, and perceived land tenure security and agricultural transformation in Nigeria	1 1 1	0 0 1	0 0 1
		Research methods for and capacity building in tenure security - Data, models and tools for studying rangeland tenure reform in Tunisia - Research workshop on rangeland tenure reform in Tunisia	1	0	2
		Analysis of the effects of resource governance models and institutions - Journal article on Green Development and REDD+ and inclusive land use planning - Journal article on environmental Justice and Adat Institution in Indonesia - Policy brief on local level development of cross border biodiversity protocols in Kenya and Somalia	0 0 0	0 0 0	0 0 1
		Research methods for and capacity building in collective action and natural resource governance - Open access simulation and game tools - Game protocols in India and Tanzania - Training materials on games and Practitioner Lab on games at International Association for the Study of the Commons	1 1 1	0 0 0	2 2 2
	Improved policies, institutions, or implementation modalities regarding tenure security are adopted in 6 countries, with greater security of beneficiaries documented in at least 2 (includes capacity development)	**Options to strengthen community and individual tenure security** - Policy dialogue on rangelands reform in Tunisia - Journal article on tenure security and rural transformation in Ghana - Policy brief on community concessions in Petén, Guatemala	0 0 1	0 0 1	1 0 1

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP5 (ctd)	Improved landscape-level governance arrangements are implemented in 6 countries, with more productive and equitable management in at least 2 (includes capacity development)	**Options to address challenges of coordination and enhance shared governance** - Policy brief on sector planning processes and entry points for integrated landscape planning viewed from a polycentric governance lens	0	0	0
		Methods for improving collective action at the community level *Also reported under outcome "Evidence informs natural resource governance and tenure policy processes/implementation in 12 countries, including 6 CGIAR countries of collaboration (includes capacity development)":* - Open access simulation and game tools - Game protocols in India and Tanzania - Training materials on games and Practitioner Lab on games at International Association for the Study of the Commons	1 1 1	0 0 0	2 2 2

FP	FP outcomes 2022	Key outputs	G	Y	CD
FP6	National researchers use improved gender research methods in 5 CGIAR countries of collaboration (includes capacity development)	**Datasets, innovative methods for gender analysis, methodological guidelines, and training** - Journal article on measurement of women's autonomy in Bangladesh and Ghana - Analysis of gender-disaggregated household survey data on agriculture, nutrition, and migration in Tajikistan	2 2	0 0	0 0
		Web-based platform and associated tools, trainings and communications products - Governance of CGIAR Platform for Collaborative Gender Research set up (Advisory Committee, etc.) - Gender platform website and newsletter - Workshop focused on gender methods and capacity development, Gender platform webinars	2 2 2	0 0 1	1 2 2
		Inventory of gender research and tools across CRPs and identification of research priorities - Scientific conference of the CGIAR Platform for Collaborative Gender Research	2	1	2
	Gender dimensions of policies are strengthened in 4 CGIAR countries of collaboration (includes capacity development)	**Policy recommendations to increase inclusiveness of rural transformation and improve opportunities for women and girls in transforming countries** - Discussion Papers on ownership and decision making in Bangladesh and Nepal - Discussion papers on the impact of mechanization on women's welfare and on migration and the transformation in women's role in agriculture - Journal article on gendered impacts of youth migration on African agricultural households - Journal article on analysis of gender, headship, and the life-cycle – determinants of landownership in four Asian countries - Journal article on analysis of data comparing land ownership, management and control of outputs in SSA	2 2 2 2 2	0 0 2 1 0	0 0 0 0 0
	The value of indicators of women's empowerment in agriculture increase in 3 CGIAR countries of collaboration (includes capacity development)	**Evidence on the gender gap in productivity, and assessments of interventions to reduce it** - Journal article on women's empowerment and agricultural productivity in Bangladesh - Discussion Papers on productive inefficiency in dairy farming and spousal cooperation in Senegal; unpacking joint decision making in production decisions in Latin America; and adoption of maize technologies and women's empowerment in East Africa	2 2	0 0	1 0