



The Food Security Learning Framework

The M&E Harmonization Group of Food Security Partners
July 2013



BILL & MELINDA GATES foundation



The Food Security Learning Framework was developed through collaboration with The Bill & Melinda Gates Foundation, the Department for International Development of the United Kingdom, the Food and Agriculture Organization of the United Nations, the International Food Policy Research Institute, the International Fund for Agricultural Development, the Millennium Challenge Corporation, the Organisation for Economic Co-operation and Development, the United States Agency for International Development, the World Bank and the World Food Programme.

All rights reserved. The document may be reproduced and distributed without prior permission for non-commercial use. Publication requests can be approved by any of the partner institutions on behalf of all.

For more information on the Framework, please contact:

The Bill & Melinda Gates Foundation

Richard Caldwell, richard.caldwell@gatesfoundation.org

Department for International Development of the United Kingdom

Rachel Lambert, r-lambert@dfid.gov.uk

Food and Agriculture Organization of the United Nations

Pietro Gennari, pietro.gennari@fao.org

International Food Policy Research Institute

Maximo Torero, m.torero@cgiar.org

Athur Mabiso, a.mabiso@cgiar.org

International Fund for Agricultural Development

Thomas Elhaut, t.elhaut@ifad.org

Marzia Perilli, m.perilli@ifad.org

Alessandra Garbero, a.garbero@ifad.org

Millennium Challenge Corporation

Kristin Penn, pennkr@mcc.gov

Organisation for Economic Co-operation and Development

Earnán Ó Cléirigh, earnan.ocleirigh@oecd.org

William Nicol, william.nicol@oecd.org

United States Agency for International Development

Emily Hogue, ehogue@usaid.gov

World Bank

Geeta Sethi, gsethi@worldbank.org

ISBN 9789290724209

July 2013

Cover photo: Women in Burkina Faso transplant onion seedlings with assistance from the Millennium Challenge Corporation.

Photo: Jake Lyell for MCC

The Food Security Learning Framework

The M&E Harmonization Group of Food Security Partners
July 2013

Objective of the partners' Food Security Learning Framework

Development partners working in the area of food security have joined together in an effort to harmonize and align monitoring and evaluation (M&E) activities and agendas for evidence-based learning. As part of that harmonization and alignment effort, **partners are developing a collaborative Food Security Learning Framework (FSLF)**. The Framework includes eight dimensions under which the majority of our programming falls and to which all partners can contribute. **This learning document outlines key questions related to the effectiveness of different approaches in promoting food security and critical knowledge gaps for which evidence and answers are lacking. The Framework prioritizes questions that, when answered, could contribute the most to efforts to improve food security programming around the world.** The partnership recognizes that a lack of evidence is not the only obstacle to improved development planning and implementation; decision makers must ground their decisions related to policies and investments on evidence to ensure that their organizations promote the best possible development practices known to the sector. Building a solid evidence base is the first step to developing a system and culture in which investment and policy decisions are based on objective facts related to what works and what does not.

A number of M&E methodologies will contribute to build evidence for the Framework. Impact evaluations are a key tool for learning and providing rigorous examination of the attributable impacts and causal pathways of development programmes and approaches. Both experimental and quasi-experimental impact evaluations will be two of the most important methods supporting FSLF, and partners have pledged to promote the use of these tools to the extent possible. At the same time, other methods such as impact monitoring, performance and process evaluations, forms of economic analysis and economic modelling will contribute to the evidence base and answers to questions outlined in the Framework below. Annex I presents a full typology of the methods that will provide evidence toward the Framework and gives standard definitions agreed upon by

partners. To provide greater potential for alignment and collaboration, the Framework also maps out common indicators that partners can apply to allow for comparison and aggregation among M&E efforts. Those indicators are included under each of the relevant themes outlined below.

The Food Security Learning Framework serves a highly important strategic function. It outlines a set of priority themes and questions for which partners agree to focus and align resources. Building on the Framework, partners will develop practical steps to align their own M&E systems and explore options for joint M&E activities between partners, especially impact evaluation. Through FSLF, partners will build on and contribute to the body of knowledge on food security to improve the design and management of interventions in the agriculture, economic growth and nutrition sectors.

Background, purpose and use of the Food Security Learning Framework

Historical experiences from the Green Revolution in Asia have provided much of the basis for global learning on key food security issues. During the long period of increasing agricultural productivity and declining real agricultural commodity prices, with some volatility, investments (fiscal and ODA) in agriculture fell; and policy makers sought to shift people out of agriculture to sectors with higher levels of productivity, higher income levels and, therefore, greater scope for poverty reduction. From 2001 onwards though, and especially in 2008, food prices surged, highlighting the structural factors contributing to higher agricultural commodity prices and their excessive volatility. The food price crisis of 2008 increased global awareness of the challenge of how (who, where, what) to feed the world by 2050, given the need to increase food availability by 60 per cent to meet the rising demand for food due to population growth and other factors. As a result, agriculture received additional attention from global (G20 and G8) and national policy makers.

As we increase investments in agriculture and nutrition, FSLF will provide development partners with a structure around which to re-engage in a manner that builds on past lessons, while updating to a number of realities. In many ways, evaluation research in the food security sector needs to 'catch up' with other sectors that have been prioritized and that have experienced greater funding levels over the past several decades, such as health programmes. High-quality and rigorous evaluative studies exist, but are relatively more scarce than in other areas and especially do not cover the complexities and expansiveness of approaches to improve agriculture from production to consumption across numerous and diverse value chains. Partners recognize that there are still many gaps in evidence around this diversity of approaches, their potential for impact and their cost-effectiveness. Additionally, the new contexts that have arisen in recent years due to social and environmental forces demand the examination of new and emerging threats to food security.

The acknowledgement of the evidence gaps gave rise to the FSLF, as partners engaging in food security programming recognized that to achieve food security

goals would require a better understanding about which development approaches work best and in what contexts. Partners also determined that greater learning would be best achieved through a collaborative effort in which knowledge could be better shared and evaluation research could be better coordinated.

The Framework has its genesis in an effort, begun by a small group of organizations working in the area of food security, to align and coordinate monitoring, evaluation and learning activities. In March 2012, this small ensemble of organizations, known as the M&E Harmonization Group, first met at the headquarters of the International Fund for Agricultural Development in Rome.¹ One of the main outcomes of that meeting was a desire to develop a joint conceptual framework for learning that would help partners prioritize and coordinate their M&E actions to build on each other's learning efforts and to optimize the use of scarce funding, in accordance with the Paris Declaration on Aid Effectiveness. While the M&E Harmonization Group has identified several other objectives related to the coordination of M&E efforts, FSLF has been the top priority, as it provides a foundation upon which to build many other joint efforts.

As the FSLF is still in its nascent stages, its uses are still not fully formulated or planned. However, the M&E Harmonization Group has determined several next steps to operationalize the Framework. First, upon completion of the FSLF, the partners will conduct a 'mapping' of all M&E activities in at least one pilot country that should contribute to answering the questions of the FSLF. While still not final, the Harmonization Group has discussed Bangladesh, Ghana and the United Republic of Tanzania as some of the best options for the first pilot countries. As a second activity to build out the FSLF, possibilities for one or more joint impact evaluations will be determined and, hopefully, jointly designed and funded impact evaluations will emerge based on shared learning priorities. Third, the FSLF is a first step to push partner organizations to improve and standardize, to the degree possible, the indicators they track. While complete standardization is not possible, partners can greatly benefit from each other through shared information about methodological best practices and, possibly, shared data. Fourth, the Harmonization Group is considering the development and resourcing of a "Learning Coordination Center (LCC)", a joint contractual mechanism that would provide support to all partners for the design and implementation of M&E

¹ At inception, the M&E Harmonization Group was composed of: The Bill & Melinda Gates Foundation; Department for International Development, United Kingdom (DFID); Food and Agriculture Organization of the United Nations (FAO); International Fund for Agricultural Development (IFAD); United States Government representation from Millennium Challenge Corporation (MCC), United States Department of Agriculture (USDA) and the United States Agency for International Development (USAID); the World Bank; and the World Food Programme (WFP).

activities that would support the Framework. Fifth, once the FSLF is final, the Group will develop a plan to disseminate the Framework document, as well as integrate it into other relevant platforms for greater sharing and institutionalization of it among partner organizations. As a key part of this fifth action, the Harmonization Group will work to ensure the FSLF is presented to the Committee on World Food Security. While future actions are still somewhat undetermined and under development, the Harmonization Group sees the FSLF as a critical first step to push forward a coordinated agenda for better partner collaboration.

Theoretical foundation of the Framework

An effective, shared framework requires that partners share a common understanding of the overall meaning of food security and have agreement, to some extent, on the causal pathways that lead to food security. Using a definition of food security promoted by FAO, the Framework assumes the following definition: *"Food security [is] a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life."*² This definition promotes four key elements of food security: **Access, Availability, Utilization and Stability**. These elements cut across all areas of food security programming and undergird the theories of change that work towards improved food security. At the highest levels, the partnership recognizes that our most important goal is to reduce poverty and hunger. Our work on food security issues is oriented towards this high-level goal and measured through the corresponding Millennium Development Goal (MDG) 1 indicators:

- Proportion of population below US\$1.25 (PPP) per day (and below national poverty lines)
- Prevalence of underweight children under 5 years of age

Indicators and goals may shift slightly after 2015 when the MDGs expire, but partners foresee that indicators and targets related to poverty and hunger will remain a part of the global development agenda. The FSLF will take on any needed adjustments as global food security priorities adapt and shift after 2015.

The Framework is underscored by an acknowledgement that meeting global food security challenges will become increasingly challenging in the coming decades as the world's population reaches nine billion around 2050, and pressures on natural and human resources intensify. Efforts to increase agricultural productivity will be met by challenges from land conversion and degradation, climate change, scarce water supplies, and competition for water, energy and other resources from industrial and urban uses.

² Food and Agriculture Organization of the United Nations (FAO). *The State of Food Insecurity in the World 2001* (Rome: FAO, 2001).

The Framework recognizes the work of the Global Donor Platform for Rural Development (2008), which suggests that long-term agricultural transformation can be achieved via three options for small-scale farming: stepping up, stepping out and hanging in. 'Stepping up' requires getting the basics in place, promoting innovation and encouraging farmers to focus on demand and market systems. 'Stepping out' places more emphasis on the rural, non-farm economy and migration. 'Hanging in' focuses on advisory services for smallholders and risk reduction. All of these phases can be strengthened by a coherent Learning Framework for improved livelihoods that addresses fundamental questions related to each.

The pathways to food security, given these multiple challenges, are diverse and complex. A myriad factors and sectors have to be addressed for global food security to be achieved and solutions will vary depending on country, state and community-specific factors such as the availability of natural resources, population growth trends and consumption patterns. Because the pathways to food security are complex, the partners involved with this effort have determined that creating a detailed results framework, or even theory of change, would likely prove infeasible and an unproductive exercise among such a diverse group with varying priorities and perspectives. Therefore, the FSLF seeks to identify key factors or objectives that are critical to achieve food security. These critical factors, hereafter called 'dimensions' in the Framework, are outlined below and highlight a shared understanding of the most critical food security programmatic areas.

Dimensions of the Framework

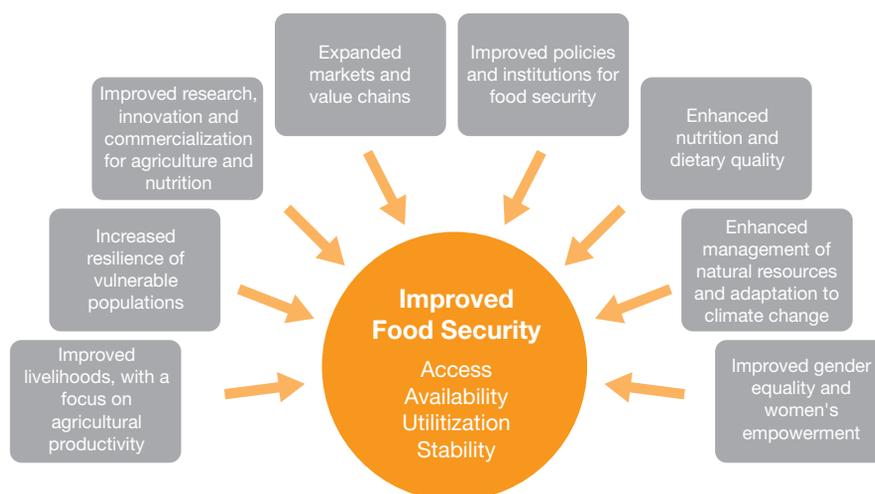
There are eight themes or dimensions under which the majority of partners' programmes fall and to which partners can contribute. All dimensions are of interest to partner organizations but, for more efficient and flexible use, each partner can focus on core learning dimensions which are critical to its institutional focus.

The dimensions of the Framework are:

1. Improved livelihoods, with a focus on agricultural productivity
2. Increased resilience of vulnerable populations
3. Improved research, innovation and commercialization for agriculture and nutrition
4. Expanded markets and value chains
5. Improved policies and institutions for food security
6. Enhanced nutrition and dietary quality
7. Enhanced management of natural resources and adaptation to climate change
8. Improved gender equality and women's empowerment

These dimensions are critical to the achievement of food security, and their relationship to food security is viewed primarily as causal in the FSLF. The diagram in Figure 1 below illustrates this relationship.

Figure 1
Framework dimensions and relationship to improved food security



In addition to these primary dimensions, there are a number of cross-cutting themes which were considered in the formulation of the evidence gaps or questions under each dimension, including:

1. Inclusive agricultural growth
2. Social, economic and environmental sustainability
3. Employment generation
4. Local capacity-building
5. Empowerment and equality

In the following sections, the eight FSLF dimensions are described in better detail, paying special attention to the causal pathways towards improved food security and any areas or causal linkages for which there is a paucity of evidence.

Furthermore, a list of proposed common indicators to track progress in each dimension can be found in a table at the bottom of each section. It is important to note that the indicators presented in this document have different rates of change. Therefore, we do not expect to observe changes in them over a uniform period of time. For example, we can reasonably expect to see changes in some indicators on an annual basis while other indicators may show change only after a period of a few years. Some indicators are intended for use in performance monitoring, some for impact evaluations and some can be used in both. Additionally, these indicators can be categorized into three groups according to their appropriate level of use and data collection: project level, sector level and population level. Those at a project level would be used to track the performance of an individual food security project or intervention. Indicators at the sector level are intended to measure the progress or conditions in the broader agriculture, nutrition, or health sector. Population-level indicators are those that use surveys or censuses to track the status of the population at a regional or national level. The proposed use of each indicator is indicated by a **PL (project level)**, **SL (sector level)**, or **Pop (population level)** next to each indicator. All individual and household-level indicators should be disaggregated by sex and age (where applicable).

Dimension 1: Improved livelihoods, with a focus on agricultural productivity

This dimension aims to contribute evidence and learning about how best to design and implement investments to support food availability and/or access to food. There are existing studies that demonstrate that improved agricultural productivity and intensification can impact greater physical availability of food and greater

economic and physical access to food, which is necessary for food security. Evidence also shows that agricultural sector growth can be an effective and direct pathway to promote inclusive economic growth and alleviate poverty and hunger. Other studies have shown that increases in agricultural productivity contribute proportionately more to economic development and can have up to six times greater impact on the poor than industrial growth.³ It has been shown that in resource-poor, low-income countries outside of sub-Saharan Africa, agricultural growth is five times more poverty reducing than growth in non-agricultural sectors. Within sub-Saharan Africa, poverty reduction is 11 times greater through agricultural growth than non-agricultural growth.⁴ Clearly, there is growing evidence that provides development partners and partner countries confidence in the causal pathway represented through an agricultural growth and improved nutrition-driven approach.

The Global Donor Platform for Rural Development notes that 75 per cent of farms in Africa and Asia measure two hectares or less. Small farms are home to two thirds of the three billion people living in rural areas of developing countries, and 75 per cent of the rural population is poor. Low agricultural productivity persists among this population, which results in low levels of farm and rural household income and low levels of consumption in these countries. These lend themselves to poor nutrition behaviours due to low availability and low ability to access diverse sources of quality nutritious foods. Additionally, poor farmer organization and inefficient market access and infrastructure inhibit small farmers and increases pressure on them to liquidate their new and improved production, exacerbating the problem. Development partners and host country partners are also confident that low levels of productivity are a key constraint to improved livelihoods. There are a number of reasons for this, including existing disincentives that impede adoption of improved practices and application of technology to improve agricultural productivity, lack of proper or weak institutions (land tenure and property rights, extension services) and market failures such as access to finance and poor market infrastructure. Therefore, it is important under this theme to identify the critical gaps in information and answer questions regarding the most effective and efficient approaches to overcome key constraints to agricultural productivity.

³ Ethan Ligon and E. Sadoulet. *Estimating the Effects of Aggregate Agricultural Growth on the Distribution of Expenditures* (Washington, D.C.: World Bank, 2008).

⁴ Food and Agriculture Organization of the United Nations (FAO). *The State of Food Insecurity in the World 2012: Contribution of agricultural growth to reduction of poverty, hunger and malnutrition* (Rome: FAO, 2012).

Critical gaps

1. What are the main disincentives to adoption of more productive technologies, inputs and practices among small farmers? What can we learn from targeted meta-studies and South-South learning related to what works and what does not work in promoting increased productivity for smallholder farmers?
2. What are the main disincentives to adoption of employable skills for employment in agricultural value chains among landless/assetless and indigenous populations, women, children and the urban poor?
3. What strategies and approaches are the most effective, efficient and sustainable vehicles for promoting adoption of innovation (credit, risk, information, experience with cultivation, lack of markets, technology, practices, behaviours) and diffusion of products and new technologies among poor people, women and the socially marginalized?
4. What are the critical pathways to productivity increases for smallholder farmers across the value chain? To what extent do agricultural productivity interventions in the staple and non-staple crop value chains lead to the generation or improvement of on-farm income and consumption, and off-farm employment?
5. What are the critical institutional factors influencing the promotion of agricultural productivity among smallholders, including contemporary land issues in Latin America, sub-Saharan Africa and South Asia that influence rural livelihoods?
6. What are the most effective approaches for social safety net programmes that link with, and that lead to, increased agricultural productivity?

Table 1
Proposed indicators for dimension 1

Indicator	Type
Prevalence of poverty: Percentage of people living under US\$1.25 per day	Pop
Agricultural Transformation Index (in development)	SL
Household Asset Index (disaggregated by productive and non-productive)	Pop
Per capita expenditures of rural households	Pop
Gross margin (US\$) per hectare of targeted commodity	PL and SL
Yield (kilogram) per hectare of targeted commodity	PL and SL
Rate of adoption of new and improved technologies and practices	PL and SL
Change in agricultural total factor productivity	SL

Dimension 2: Increased resilience of vulnerable populations

Increased resilience of vulnerable communities and populations cuts across many of the other dimensions identified in this Framework because resilience to shocks at the household, community and national levels is itself a multidimensional phenomenon. For this Framework, disaster resilience is defined as: “the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses – such as earthquakes, drought or violent conflict – without compromising their long-term prospects.”⁵ The work done by FAO and WFP to develop a resilience measurement tool provides a useful starting point for thinking about these dimensions, which include income and food access, assets such as land and livestock, social safety nets (formal and informal), basic services (health, nutrition, education), adaptive capacity and the stability of these factors over time. A better understanding of how these related, but distinct and at times conflicting aspects of resilience influence and interact with one another is critical for designing effective programmes and measuring results.

Since resilience is multidimensional, increasing resilience requires improving the capacity of households, communities and countries to absorb, cope with, adapt to and manage shocks through various combinations of the pathways outlined above. Shocks can be simple or complex, transitory or chronic. Promoting resilience against different types of shocks (or better yet a typology of shocks) remains an area of critical importance, both for the humanitarian transformation framework and development in general.

Value chain investments in markets with lower risk and lower entry barriers that encourage the participation of poorer rural households and seek to expand their economic opportunities, provide a prominent example of increasing resilience through improved income and food access. However, these investments also highlight an inherent tension between efforts to increase productivity on the one hand and efforts to mitigate risk on the other. Investments in risk mitigation, such as index-based insurance (crop or livestock) and productive safety nets that allow poorer and food-insecure households to assume greater risk, hold promise in this regard but are largely untested. Analysis of the impacts of these and other efforts to increase resilience through investments that increase productivity whilst also mitigating risk, will contribute significantly to an improved understanding of how best to achieve inclusive agriculture-led growth.

⁵ Department for International Development (DFID). *Defining Disaster Resilience: A DFID Approach Paper* (London: DFID, 2011).

Critical gaps

1. What interventions have improved the ability of vulnerable households to withstand (i.e. maintain stable consumption and protect assets) and/or recover (i.e. regain consumption levels and rebuild lost assets) from common and extreme shocks affecting their economic activities? In what ways?
2. Which agricultural productivity interventions have had the greatest impact on resilience of households and individuals to recover from or withstand common and extreme shocks?
3. To what extent do different interventions to promote market access (such as promoting access to markets with lower risks and lower entry barriers) lead to the participation of poorer households? What interventions on both the 'push' (social protection) and 'pull' (value chain deepening) sides improve the participation of poor people in value chain activities?
4. Have safety net programmes promoted greater participation of poorer households in prudent risk taking and more remunerative economic activities?
5. What are the most effective economic growth strategies for making poor and vulnerable communities and households more resilient to shocks? How may we best combine investments and programmes to optimize impacts on resilience?

Table 2
Proposed indicators for dimension 2

Indicator	Type
Coping Strategies Index	PL and Pop
Household Hunger Scale	PL and Pop
Household Food Insecurity Access Score	PL and Pop
Durable index on assets (FAO)	PL and Pop
Safety net dependency (FAO)	PL and Pop
Diversity of income sources (FAO)	PL and Pop
Stability of income (variance associated with income)	Pop
Depth of poverty (LSMS)	Pop

Dimension 3: Improved research, innovation and commercialization for agriculture and nutrition

Agricultural research has consistently been shown to be critical to sustaining and enhancing agricultural productivity growth, which is strongly linked to economic growth and poverty reduction. In addition to the linkages among agricultural productivity, agriculture-led economic development and poverty reduction, there are multiple interacting direct and indirect pathways through which agricultural research can contribute to improved nutrition. Such issues have been the subject of substantial agricultural research in the social sciences, which provide insight into the role of gender, household coping strategies and resilience as they affect well-being in general and nutrition in particular.

The potentially large and widespread impact of agricultural research occupies a central role in the agricultural development strategies of many development partners. Many ex-post evaluations provide evidence that research programmes and initiatives have been a major contributor in reducing world food prices and increasing real incomes. Greater food availability and access, generated through research innovations, have led to increased caloric and protein intake, especially among poor people, lowering the incidence of hunger, poverty and malnutrition.⁶ However, large and numerous gaps remain around the types and magnitudes of impacts that can be generated from distinct research activities. Reviews of ex-post impact analyses indicate an overall high rate of return on investments in agricultural research but results vary across regions, over time within regions (e.g. greater gains have been shown in Africa in recent years) and among different types of research. In many settings, constraints at the system level (e.g. access to input and output markets, infrastructure and other factors) may reduce the effectiveness of research-based innovations. Hence, research needs to be done in ways that create, build and maintain information flows between researchers and the user community, which can help clarify research objectives and inform research design and validation.

Many unanswered questions remain around innovations that are most effective at increasing agricultural productivity while mitigating any potential negative impacts on the resource base, or that instead enhance it through increased soil organic matter, water holding capacity or fertility. On the other side of those questions lies the need to acknowledge the economic and development trade-offs

⁶ Robert E. Evenson and M. Rosegrant. "The Economic Consequences of Crop Genetic Improvement Programmes" in *Crop Variety Improvement and its Effect on Productivity: The Impact of International Agricultural Research*, eds. R.E. Evenson and D. Gollin (Oxon, United Kingdom: CABI Publishing, 2003).

between pursuing sustainable intensification versus pursuing unharnessed agricultural production. Evidence gaps also persist around innovations related to biofortification and methods of effectively scaling up proven innovations. Social science research remains a vital contributor to agricultural outcomes that foster both biophysical sustainability and economic and cultural viability of innovations. It provides learning and understanding of strategies and methods that enhance dissemination and adoption of improved technologies, policies or resource management practices, as well as of the best approaches for improving the effectiveness of agricultural institutions in supporting and sustaining agricultural productivity.

Evaluating programmes with respect to nutritional outcomes can pose several challenges. First, nutrition research is generally a long-term endeavour and the timeline of these research programmes can often stretch ten to twenty years to show any results. Second, regardless of whether advances from nutrition research are incremental (more typical) or breakthroughs (rare), they often are linked to investments that build on a range of earlier efforts, making it difficult to delineate an outcome as being fully reflective of a particular resource or activity stream. Fortunately, economists have developed effective tools for addressing these issues by apportioning outcomes through rigorous impact evaluations. In some cases, the need for a counterfactual can be addressed using baseline surveys and growth rates, thus providing an instructive comparison or control group. In institutional settings, for example, in terms of provision of support to national research systems, there may be no comparable group and thus no counterfactual, which complicates evaluating such assistance programmes. However, longitudinal studies across developing countries do show that investment in research correlates with much improved rates of return to investments in extension.

The challenges posed by evaluation and impact assessment of agriculture and nutrition research do not mean we have to give up on evaluating these programmes, but we do have to tailor our methods and use different approaches to answer different questions. The partners face the prospects and additional challenges (compared to earlier research efforts) of breaking new ground in elucidating pathways not only to productivity, income gains, environmental benefits or harm and equity, but also to nutritional status – a highly complex objective that is dependent on a complex set of factors. The overlaps and interconnections between the agriculture and nutrition research dimension, and other dimensions of the FSLF – particularly natural resource management, nutrition and rural productivity – are apparent and should be considered in the development of any impact evaluations of research programmes. Moreover, impact evaluations that encompass

outcomes from earlier investments provide learning opportunities for the design of new investments, with new knowledge offering a means of relevant learning in the context of the rapidly transforming development sector.⁷

Critical gaps

1. What partnership mechanisms are most cost-effective and sustainable for carrying out high-quality agricultural research?
2. How do public-private partnerships contribute to reducing the cost of research for agriculture and nutrition?
3. How do public-private partnerships add value to research by facilitating innovation, and do they enhance the impact of research on smallholders and other marginalized groups?
4. What innovations to improve agricultural productivity most effectively increase nutritional outcomes?
5. What mechanisms for promoting the adoption or commercialization of new innovations (technology, practices and behaviours) have proven to be cost-effective and sustainable?
6. What are the most effective methods for scaling up proven innovations? What are the best methods for overcoming the constraints that are preventing farmers from adopting and adapting research and development (R&D) outputs more widely?

Table 3
Proposed indicators for dimension 3^a

Indicator	Type
Yield (kilogram) per hectare (resulting from supported innovation)	PL and SL
Volume of commercial sales (of supported innovations)	PL and SL
Value of funding leveraged from private sector for research and innovation	SL
Total agricultural R&D spending by the public sector	SL
Share of national budget devoted to agricultural R&D	SL
Number of trained staff (ASTI)	PL

^a Cross-reference dimensions 1 (livelihoods) and 6 (nutrition) for other indicators.

⁷ IFAD defines innovation as “a process that adds value or solves a problem in new ways.” Here we utilize the World Bank approach which defines innovation as “technologies or practices that are new to a given society. They are not necessarily new in absolute terms. These technologies or practices are being diffused in that economy or society. This point is important: what is not disseminated and used is not an innovation.” *Innovation Policy: A Guide for Developing Countries*, p. 4, available at: <https://openknowledge.worldbank.org/bitstream/handle/10986/2460/548930PUB0EPI11C10Dislosed061312010.pdf?sequence=1>.

Dimension 4: Expanded markets and value chains

Meeting the goal of reduced poverty and hunger requires learning how to create inclusive value chains that are market-led by reaching further down the wealth continuum to involve resource-poor farmers in the uptake of new technologies and market opportunities. Once this first challenge is solved, a second challenge will be to create a cargo net or other graduation pathway that will allow the poorest households to build the minimum assets needed to participate in inclusive value chains. While the minimum asset threshold for effective participation in value chain programmes is far from clear, it is apparent that the adoption of new technologies by small farms, participation in local and regional markets and participation in value chains is stunted by low knowledge, risk and uncertainty. It is also clear that their participation in high-value chains is affected by lack of post-harvest technology, access to storage and know-how related to quality standards, phytosanitary norms and certification.

Recent work on agricultural value chains and the role of the private sector in Thailand⁸ highlights that food is increasingly channeled via formal sector outlets and there is a natural tendency towards concentration at all levels in the value chain. Entrepreneurs seek to shorten and rationalize the supply chains, private sector managed value chains shift to higher value products and the private sector develops its own standards for food quality and safety. These private sector actions often lead to a 'professionalization' of farming, accompanied by increased farm size, often in a contract farming context, which results in new and different challenges for smallholder farmers.

Private sector companies tend to source from larger farms and avoid smallholders in 'scale-dualistic contexts'.⁹ However, there are instances of private companies sourcing from smallholders, usually in contexts where the agrarian structure is dominated by small farmers. When they do so, they source from smallholders with the requisite non-land assets (such as irrigation, paved roads, green houses, farm equipment and farmers' associations). When smallholders are included in modern value chains, they benefit in terms of incomes and assets; this generates positive externalities in the local labour markets (increased labour use and hired labour, on- and off-farm). These benefits result from:

⁸ Global Donor Platform, "Platform Knowledge Piece 3: The strategic role of the private sector in agriculture and rural development: Thailand working paper," <http://www.donorplatform.org/load/11515>.

⁹ Thomas Reardon, et al. "Agrifood Industry Transformation and Small Farmers in Developing Countries," *World Development* 37 (2009):1717-1727.

- Higher productivity
- Higher farm gate prices, for higher value and higher quality products, especially when graded and supplied in a consistent manner
- Implicit input and credit subsidies
- Lower market risks

Sourcing from smallholders needs to be facilitated by a better understanding of the 'midstream' (wholesale segment) in order to assess how downstream restructuring affects the upstream actors (smallholders). As initial farm-sector structure and government policy affect the pace and nature of the agrofood industry transformation, and as this influences the inclusion of smallholders in value chains, there is a significant role for governments to create an enabling policy environment and to provide assets for small farmers to 'make the grade' and to participate in transforming the food economy.

Regarding risk, development economics has long been preoccupied with the notion that one of the biggest costs of risk is that it induces farm households to 'income smooth' and shy away from riskier new technologies and economic opportunities that offer improved incomes on average. In addition, risk also stunts the development of rural factor and product markets, compounding the adoption problems for liquidity-constrained farm households. Finally, risk and the absence of deep credit markets create consumption variability that contributes to the intergenerational transmission of poverty, lessening the long-term human development impacts of even those incomes and growth rates that are achieved. Adequately addressing these problems and identifying an optimal value chain deepening strategy will likely require an integrated programming and pilot project research framework which may involve further financial innovation, self-finance through savings, savings secured loans, or group credit and other microfinance innovations.

Other important topics linked to markets are structured demand and pull mechanisms. Structured demand connects large, predictable demand for agricultural products to small farmers, which reduces risk and encourages improved quality, leading to improved systems, increased income and reduced poverty. Examples of structured demand for smallholder farmers include the WFP's P4P programme, school feeding programmes and nationally managed social safety nets. There is tremendous potential to link farmers to markets through these programmes, as they constitute value ladders.

Critical gaps

1. What output market-based incentives exist for the adoption of innovations/ interventions designed to increase agricultural productivity?
2. What types of investments (farm to retail) in value chain development deliver outcomes and result in poverty reduction, and with what level of effectiveness and efficiency?¹⁰
3. What has been the impact of market-related infrastructure interventions (transport, services, etc.) on smallholder farming transformation? What is the impact when infrastructure investments are used in combination with more traditional value chain or productivity-enhancing interventions?
4. Which commercial arrangements ensure that interventions in agricultural value chain development effectively and efficiently lead to the development of local institutions that enable smallholders to participate and/or that produce systemic behaviour change; and how?
5. Are farmers' organizations and collective enterprises effective in helping to build the incomes and assets of their member households? Which factors have led to market power within the value chain and the ability to determine fair and efficient market prices?
6. Which mechanisms/investments are most effective and efficient in reducing post-harvest losses?
7. Which mechanisms enhance net income/value addition for smallholder farmers?
8. Have structured demand interventions (such as P4P) stimulated agricultural and market development for low-income smallholder farmers? What are the characteristics of specific structured demand interventions that have maximized agricultural market development for low-income farmers? Which areas of the smallholder value chains can benefit from pull mechanisms?
9. What impact do quality, safety and environmental standards, both public and private, have on smallholder farmer participation in high-value chains? Which mechanisms are most effective and efficient in assisting farmers to meet standards?

¹⁰ What types of investments and value chain functions have generated opportunities for employment among the poorest quintile, women and other vulnerable groups? What value chain development interventions better respond to different contexts and rural populations with different asset endowments?

Table 4
Proposed indicators for dimension 4

Indicator	Type
Value of incremental farm gate sales of a targeted commodity (attributable to an intervention)	PL
Number of jobs created (as a result of an intervention)	PL
Income generated (as a result of an intervention)	PL
Number and value of production contracts (signed with smallholders, disaggregated by firms and type of contract)	PL
Value and volume of products purchased from micro, small and medium enterprises (by firms)	PL
Number of farmers complying with standards	PL
Number and value of loans from formal sources (including microfinance institutions)	PL
Quality of rural institutions and their support to inclusive value chains (Index)	PL and SL
Volume and estimated value of post-harvest loss (volume provided as percentage of total produce)	PL

Dimension 5: Improved policies and institutions for food security

There is no lack of expertise and analysis among international organizations, developing country governments, donor agencies, partner governments, NGOs, the private sector and civil society, on the causal pathways of food insecurity and food security. An academic or technical understanding of the problem, however, is not sufficient. The agricultural sector and the rural economy are complex and contested spaces. There are many actors – public, private and civil society – large and small – formal and informal. All of these actors have important roles in the development process, despite having unique interests, many of which are in conflict and competition.

Public policy and resource allocation in agriculture have direct economic consequences – advantages and disadvantages – for the individuals, households and firms, who are the drivers of agricultural development. They often compete for access to economic assets and opportunity, advocate for public policy frameworks that facilitate their own interests and seek advantage over their competitors in the marketplace. Policymaking in agriculture is difficult and although laws, regulations and expenditures are all made, the processes through which decisions are made are frequently unclear, ill-defined and, as a consequence, are often non-inclusive, inequitable and inefficient.

The negative effects of the uneven influence of significant stakeholder groups (that seek their interests without consideration of impacts on society as a whole) on public policies and institutions in the agricultural sector indicate weak institutions and demonstrate that more evidence is needed on the specific institutional arrangements that will lead to effective policymaking and delivery in the sector. In each country, the challenge lies in building a shared consensus on the appropriate institutional architecture (i.e. the rules and frameworks that govern how policies are made, who participates in the policy process and how). Moreover, the challenge entails identifying and implementing policies that will create an enabling environment for poverty reduction and food security. In the process, it will be necessary to address and resolve contentious issues (such as access to public resources and services, control over productive assets, regulation and market failure) and the nature of the institutions that govern the agricultural sector will often determine a society's ability to resolve such difficult issues.

Improved policies and institutions are required in most development contexts to build a more enabling environment for agricultural growth, increased trade and more equitable and sustainable economic growth. The targeted outcomes and causal pathways of institutional and policy reform are diverse and complex varying across geographic regions, but most seek to create a better, more efficient, inclusive, transparent policy process at various governance levels (e.g. country, region, globe). This in turn will create a better policy environment for development interventions and private-sector activities to be more effective in improving food security. Thus, enhancing the quality of institutional architecture is of paramount importance to create and sustain a policy environment that is conducive to food security. However, knowledge of the appropriate institutional architecture for improved food security under different social, political and economic settings (e.g. stage of development) is limited.

In some countries, improving institutional architecture for food security has entailed increased and inclusive participation in the policy process, while in other countries, increased food security has resulted when policy processes constituted fewer participants and less inclusiveness. Thus, research on the key features of different institutions in different contexts is needed to help illuminate what constitutes improved quality in institutional architecture, policymaking and policies that would then create an overall enabling environment for food security. This improved enabling environment would in turn help increase and sustain incentives, opportunities and security for smallholder farmers and businesses. Together, these accelerate or deepen outcomes related to agricultural productivity, market access, public and private investment, employment and resilience that ultimately lead to inclusive agricultural growth, food security and poverty reduction.

Building an institutional architecture for improved policy formulation entails several components that could include the enhancement of capacity (in and outside of government) for improved policy work at the country, regional and global levels, promoting inclusive participation of multiple partners and stakeholders, designing and instituting mechanisms for transparency and accountability, and creating structures and space for science to generate and provide a relevant evidence base for policy formulation. It may also entail improving communication, information flow across the various stakeholders, the quality of data, and monitoring and evaluation systems, which are all vital for transparency and accountability. Also, potentially important are steps to ensure open feedback and peer-review among the scientific community, policy makers, as well as citizens, to ensure demand-driven policy processes and outcomes. These processes will likely produce sustainable policy improvements that accelerate countrywide, regional and global reductions in poverty and improvements in food security. Impacts of the architecture will be:

- Policies that directly accelerate progress towards the goals of poverty reduction and food security
- Policies that indirectly accelerate progress by complementing public and development partner investments in agriculture, and that function to make those investments more cost-effective
- A more stable and transparent policy environment that often is a prerequisite for greater engagement of private sector and smallholder agricultural investments

As we focus on food security (more food; better quality/nutrition; access and stability), on structural transformation in the agricultural sector and in the food system, and on the new incentive system, there is merit in looking at the policy and institutional options and screening them against impact and cost-effectiveness vis-à-vis food security. In doing so, it is important to recognize that policies and institutions alone do not suffice, but rather they work together with investments and interventions. Thus, evaluations of policy and institutions will need to account for the complementarity of investments and interventions to shed light on the options that best enable smallholders and the private sector (in general) to engage in business opportunities in agriculture to support agricultural transformation.

Critical gaps

1. What are the most effective approaches to promote policymaking processes that are inclusive of all major stakeholders?
2. What are the most effective approaches to promote evidence-based policymaking processes (i.e. generation, provision and use of evidence)?

3. What has proven to be the most effective package of institutional and policy reforms to increase agricultural productivity and prepare for effective agricultural transformation (i.e. to equip small farmers with viable skills and employment options outside of agriculture)?
4. What are the most effective set of policy reforms to attract responsible private-sector investment into smallholder agriculture and enable private-sector activities to improve food security?
5. What policies and policymaking processes have promoted the integration of the agriculture and nutrition sectors?
6. Which aspects of land tenure and property rights have been most effective in improving land security and investments in smallholder agriculture?
7. Which policies most effectively promote adaptation to climate change and strengthen resilience?

Table 5
Proposed indicators for dimension 5

Indicator	Type
Number of policies and regulations (at different stages of development)	PL
Membership of representative farmers' organizations and/or advocacy groups	PL
Number of participatory policy forums	PL
Implementation status of policy strategies and actions (in government planning documents and government commitment compacts)	PL and SL
Number of trade barriers lifted	SL
Tariff rates; nominal rates of assistance for exportable and import competing farm products; Consumer Tax Equivalent (CTE); Trade Bias Index (TBI)	SL
Exchange Rate Overvaluation	SL
Number of land expropriations without compensation	SL
Ratio of market value to compensation value for government-acquired land	SL
Number of land invasion incidences	SL
Number of land disputes (settled by local judiciary)	SL
Ratio of large-scale land acquisitions to related farmer-community consultations*	SL
Share of public expenditure on agriculture	SL

*Several land governance indicators are currently being developed and tested and data are being collected in pilot countries of Ghana, Malawi, Nigeria, Rwanda, South Africa and Georgia under the Land Governance Assessment Framework initiative jointly implemented by the World Bank and IFPRI.

Dimension 6: Enhanced nutrition and dietary quality

Many interventions that propose to improve nutrition and diet quality are typically nutrition-specific interventions that address the immediate causes of undernutrition (such as energy and specific nutrient insufficiency) but they do not address its underlying causes. Similarly, agriculture-focused interventions typically aim to improve agricultural productivity, income and access to markets for poor people, but by failing to make the link to nutritional outcomes they may be missing a unique opportunity to improve nutrition and diet quality.

When health and agricultural interventions are implemented in tandem, there are several pathways by which agricultural interventions can impact nutrition:

- Food production for own consumption
- Increased income from sale of agricultural commodities and greater farm productivity
- Women's empowerment to make decisions on food production and provision at the household level
- Lower food prices resulting from increases in food supply
- Macroeconomic effects of agricultural growth
- Improved intake of essential nutrients through the introduction of nutritionally enhanced crops
- Improved population health can also increase agricultural productivity (a virtuous cycle), but agriculture is also associated with health risks from zoonotic diseases and sources of contamination in the food chain

Given these multiple pathways, it is important to identify and examine synergies among nutrition and agricultural interventions and programmes to improve population nutrition and health outcomes.

A 2007 World Bank/IFPRI review¹¹ concluded that agricultural programmes are most likely to have an impact on nutritional outcomes when they move beyond a narrow focus on agriculture for food production towards broader consideration of people's livelihoods, gender equality and assets. And when they incorporate specific nutritional goals and interventions targeted towards the most vulnerable household members such as mothers and young children. This and other reviews also note that the extent to which agriculture has contributed to improved nutrition and the exact pathways of impact are difficult to quantify because few

¹¹ World Bank and International Food Policy Research Institute. *From Agriculture to Nutrition: Pathways, Synergies, and Outcomes* (Washington, D.C.: World Bank, 2007).

rigorous impact evaluations have been carried out utilizing nutrition outcome indicators.¹² There is broad consensus in the literature that agricultural programmes may have great potential to improve nutritional outcomes, given their multiple hypothesized pathways of impact, but that this potential has yet to be fully understood and achieved. Rigorous evaluations of agricultural programmes are urgently needed to understand the real potential of agricultural interventions to improve nutrition, the mechanisms by which this impact is achieved and the contextual factors that may enhance or inhibit this impact.

Critical gaps

1. Which technologies, products and approaches result in improved diets and nutritional outcomes, and are demonstrated to be cost-effective and sustainable (i.e. technologies and approaches that improve yields, incomes, dietary diversity and consumption, and that reduce sources of contamination in the food chain)?
2. How is the impact of these different technologies, products and approaches mediated by social and economic factors, whether income group, gender or social category, as well as within the household?
3. What combination of nutrition-specific interventions and behaviour change strategies are most cost-effective and sustainable?
4. What are the impacts of food and agricultural policy change on nutrition through the value chain, including on diet-related non-communicable diseases? How do different pathways to agricultural transformation and smallholder commercialization impact upon diets and nutritional outcomes?
5. What governance structures facilitate the promotion of effective nutrition-sensitive agricultural development and lead to improved nutritional outcomes at global, national and community levels?

¹² Edoardo Masset, et al. *A systematic review of agricultural interventions that aim to improve nutritional status of children* (London: EPPI-Centre, University of London, 2011), p. 20.
Marie T. Ruel. *Can Food-Based Strategies Help Reduce Vitamin A and Iron Deficiencies? A Review of Recent Evidence*. Food Policy Review 5 (Washington, D.C.: IFPRI, 2001).

Table 6
Proposed indicators for dimension 6*

Indicator	Type
Prevalence of underweight children under 5 years of age (weight for age)	PL and Pop
Prevalence of stunted children under 5 years of age (height for age)	PL and Pop
Prevalence of wasted children under 5 years of age (weight for height)	PL and Pop
Prevalence of underweight women (non-pregnant women 15-49 years with BMI < 18.5kg/m ²)	PL and Pop
Prevalence of children (6 to 23 months) receiving a minimum acceptable diet or children's dietary diversity: mean number of food groups consumed by children	PL and Pop
Women's dietary diversity: mean number of food groups consumed by women of reproductive age	PL and Pop
Prevalence of exclusive breastfeeding of children under 6 months of age	PL and Pop
Prevalence of anemia of women of reproductive age	PL and Pop
Prevalence of anemia of children under 5 years of age	PL and Pop

* All indicators proposed for this theme are collected through demographic and health surveys.

Dimension 7: Enhanced management of natural resources and adaptation to climate change

Poor rural people face a series of interconnected natural resource management challenges. They are on the front line of climate change impacts; the ecosystem and biodiversity on which they rely are increasingly degraded. Some of these challenges include:

- Access to suitable agricultural land is declining in both quantity and quality
- Forest resources are increasingly restricted and degraded
- Crops are produced on typically marginal rain-fed land, with increased water scarcity
- Energy and agricultural input prices are on a rising long-term trend
- Declining fish and marine resources threaten essential sources of income and nutrition

At the same time, agriculture, food production and distribution are important contributors to climate change. Farmers are not only victims but also contributors to climate change. Evidence on the balance between these two tendencies needs to be sharpened.

There are a range of issues related to the management of natural resources and climate change adaptation for which evidence is scarce. Food security programming can greatly benefit from increased understanding around:

- Improved land management and climate-resilient agricultural practices and technologies: landscape management, conservation agriculture strategies, ecosystem services, the importance of governance (both incentives and governance systems), land tenure and responsible agricultural investment
- Increased availability of and access to water, and efficiency of water use for smallholder agricultural production and processing
- Increased human capacity of adaptation and weather-related disaster risk reduction at the local level
- Documented and disseminated knowledge of climate-smart smallholder agriculture

As in other dimensions of the Framework, challenges in conducting evaluations can impede learning around resource management and climate change adaptation. The application of rigorous impact evaluation techniques to assess the effectiveness of climate change interventions has so far been limited.¹³ In particular, the longer development timeline needed to generate and measure long-term impacts in this area make conducting evaluations more complicated.

Critical gaps

1. What interventions improve the ability of vulnerable households to withstand and/or recover from extreme climate shocks that affect their economic activities?
2. What are the best incentives to encourage governments to adopt and implement proper legislation and to manage natural resources sustainably? What are the best incentives to encourage community-level management and maintenance of natural resources and climate-resilient infrastructure?
3. How can climate change adaptation programmes facilitate equitable sharing of benefits among heterogeneous groups with varying land/water use priorities?
4. What are the impacts of land tenure and land tenure security on sustainable natural resources management?
5. What are the most effective incentives to promote the implementation of binding and non-binding international/national instruments governing natural resource management?

¹³ Martin Prowse and B. Snilstveit. "Impact Evaluation and Interventions to Address Climate Change: A Scoping Study," *Journal of Development Effectiveness* 2, no. 2 (2010): 228-262.

6. What are the most effective natural resource management technologies/ techniques to reduce natural resource degradation (e.g. soil management techniques to reduce soil loss and land degradation, water management/ irrigation techniques to reduce water loss and improve efficiency)?
7. Are climate-smart agricultural practices and approaches reflected in national planning processes? Does this translate into improved and sustainable natural resource management on the ground?

Table 7
Proposed indicators for dimension 7*

Indicator	Type
Change in land covered by agriculture (specifying change into/from natural or non-natural uses)	PL and SL
Change in proportion of land area covered by forests	PL
Number of community groups (including women's groups) who are involved in environmental and natural resource management and/or disaster risk reduction	PL
Percentage of land and water area formally established as protected area	SL
Irrigated land as percentage of total cropland	SL
Increased crop yields from irrigated land	PL and SL
Withdrawal of water for agriculture as a percentage of total water withdrawal	SL
Change in soil loss from watersheds	PL and SL
Change in effect of inputs on the environment	SL

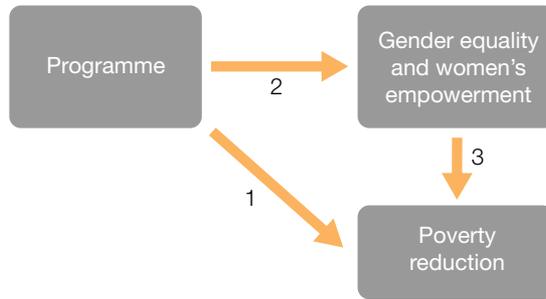
* All indicators are from the World Bank Global Strategy to Improve Agricultural and Rural Statistics.

Dimension 8: Improved gender equality and women's empowerment

Gender equality and the empowerment of women are critical goals on the road to food security. Equality and empowerment are viewed as an objective, in and of themselves, representing a better quality of life for those who are empowered and greater social stability for communities experiencing equality. At the same time, equality and empowerment are often considered important intermediate objectives for development partners targeting economic growth and poverty reduction.

Impact evaluations of programmes would ideally show how these programmes affect gender equality and women's empowerment, but also how improved gender equality and women's empowerment precipitate poverty reduction, hunger alleviation and malnutrition. This suggests a model such as the one below:

Figure 2
Theoretical relationship between a food security programme, gender equality and poverty reduction



The Framework seeks to understand all three arrows in this diagram, which in practice would maximize our understanding of how gender equality and women's empowerment are a pathway to attain programme objectives such as hunger reduction and improved food security. The methodological challenge that arises is separating the direct effect of the programme (arrow 1) on poverty reduction, from the indirect effect coming from gender equality and women's empowerment (arrows 2 and 3). In order to do so rigorously, programme implementation would need to be altered so that different versions of the same programme affect gender equality and women's empowerment differentially, while not changing the direct effect.

Perhaps the most essential question would be whether programmes that emphasize gender equality and women's empowerment are more effective at reducing poverty and improving food security than those that do not emphasize women's empowerment and gender equality. This question would also require that different versions of the same programme be implemented, but without the additional challenge of designing an alternate one, so that the different versions have the same direct impact.

The evidence gap around gender equality and women's empowerment does not stop with the question of their relationship to economic growth. It is widely recognized that women play a critical role in agriculture, yet they continue to face social and economic constraints that hinder their full engagement, advancement and equality in the sector. Development partners, as a community, are still looking for the most effective methods for addressing those constraints.

Research has revealed that when women are provided with equal resources, they can produce yields equal to those of men, if not greater.¹⁴ The 2011 State of Food and Agriculture report stated that closing the gender gap and providing women with the same resources as men could increase individual yields by 20-30 per cent. Yet, there is still little evidence about which approaches are most effective in reducing gender gaps in access to productive resources. Questions also remain about how development programmes can best engage women, increase their leadership roles, and assess whether and how their participation in these roles leads to improved food security in their communities. Finally, as many development partners focus on a value chain approach to food security, we need to better understand how promoting commercialization of agricultural products impacts both women and men, how commercialization influences gender equality, and if there are certain approaches to value chain methods that can be more beneficial for the objectives of gender equality and women's empowerment.

Critical gaps

1. Have agricultural productivity interventions reduced gender gaps in access to and use of production inputs? What are the pathways?
2. How have agriculture and nutrition projects or approaches effectively improved gender equality and women's empowerment, specifically in terms of agricultural production, decision-making over and access to credit, control over income, leadership in the community and time use?
3. Does gender integration in the implementation of agriculture and nutrition programmes lead to improved food security?
4. Have capacity-building and increased leadership/management opportunities for women led to increased participation of women in leadership roles in the community? Has increased participation of women in leadership roles led to more sustainable resource use and efficient use of community assets?
5. Have interventions advancing commercialization in value chains affected access to paid employment or types of employment for women and men? Have they led to increases or decreases in unpaid work for men or women?
6. Are programmes that emphasize gender equality and women's empowerment more effective at reducing poverty and improving food security?

¹⁴ Akinwumi A. Adesina, and K K. Djato. "Relative efficiency of women as farm managers: Profit function analysis in Côte d'Ivoire," *Agricultural economics* 16, no. 1 (1997): 47-53.
 Agnes R. Quisumbing, et al. "Women's Land Rights in the Transition to Individualized Ownership: Implications for Tree Resource Management in Western Ghana," *Economic Development and Cultural Change* 50, no. 1 (2001): 157-182.
 Christopher Udry, et al. 1995. "Gender differentials in farm productivity: Implications for household efficiency and agricultural policy," *Food policy* 20, no. 5 (1995): 407-423.

Table 8
Proposed indicators for dimension 8

Indicator	Type
Women's Empowerment in Agriculture Index	PL and Pop
Gender Parity Index Score	PL and Pop
Five dimensions of empowerment index	PL and Pop
Yield gap between male and female farmers	PL and Pop
Social Institutions and Gender Index	Pop
Share of agricultural holdings that are female-headed	Pop
Female labour force participation	Pop
Percentage of women with control over the use of income generated from agricultural production	PL and Pop
Ratio of girls' school enrolment to boys' school enrolment	Pop

Annex

Typology of monitoring, evaluation and analysis methods that contribute to the Food Security Learning Framework

1. Impact evaluation: Experimental/Randomized Control Trial (RCT)

Definition: Impact evaluation is an assessment of how the intervention being evaluated affects outcomes, whether these effects are intended or unintended. The proper analysis of impact requires a counterfactual of what those outcomes would have been in the absence of the intervention. In order to ensure comparability, an experimental design randomly assigns eligible households to the project and comparison groups.¹⁵

2. Impact evaluation: Quasi-experimental

Evaluation designs which address selection bias using statistical methods, such as propensity score matching, rather than randomization. These methods model the selection process and, therefore, control for these variables in the analysis of outcomes.¹⁶

Examples: Propensity Score Matching, Regression Discontinuity Design.

3. Impact monitoring

A systematic methodology and set of common indicators across programmes and regions to measure and inform on the performance and impact of projects.¹⁷ (Incorporated under 'Performance Monitoring' at USAID).

4. Economic modelling

Economic Policy Modelling includes both theoretical and empirical models of policy and its effects on economic agents. Modelling instruments must be empirically validated on the basis of replicable data, and take into account the interdependence of economic trends over time, countries and sectors. Counterfactuals (e.g. the effects of a proposed policy or what would have happened

¹⁵ Organisation for Economic Co-operation and Development. "Outline of Principles of Impact Evaluation: Part 1: Key Concepts," (2009) 1 and 7. <http://www.oecd.org/development/evaluationofdevelopmentprogrammes/dcdndep/37671602.pdf>.

¹⁶ *Ibid.*, 7.

¹⁷ International Fund for Agricultural Development. Results and Impact Management System (RIMS), PowerPoint presentation for the Implementation Workshop, Bamako, (2005) http://www.ifad.org/events/bamako/e/1_5_rims.ppt.

in the absence of the current policy) are constructed based on the validated model by changing the variable(s) representing the policy of interest and recalculating the relevant model outcomes. Usually partial (focus on the set of economic agents of interest) equilibrium (assume some form of optimization and/or market clearing).

Computable General Equilibrium (CGE) models are a class of simulation models that calculate quantitative (*computable*) measures of policy impacts, based on specified economic relationships between a wide variety of actors and inputs representing an entire economy (*general*) usually summarized in a Social Accounting Matrix. The underlying relationships are assumed to represent optimizing behaviour taking into account direct and indirect effects and feedback (*equilibrium*). Most applicable for policies that are easily represented as changes in prices (taxes, tariffs, subsidies) or resources (changes in public expenditures). Usually used for comparative statics.

5. Economic Analysis

Economic Analysis includes a variety of methods that are used to examine the economic impacts of a development project or programme. This category includes:

Economic Rate of Return (ROR) Analysis is a technique for collapsing the past and future stream of benefits and costs of a project into a single number called the **rate of return** that can be compared to an interest rate (opportunity cost of capital). This analysis can use inclusive measures of costs and benefits and is used for project and portfolio-level investment decisions.

Return on Investment Analysis is a technique for comparing the future stream of benefits from an activity with the level of investment in the activity. This analysis focuses on investment costs only and cash benefits and is often used by the private for-profit sector.

Cost-Benefit Analysis (CBA) is a form of economic analysis used to determine if a proposed project is worth doing or to choose among several alternative ones. It involves comparing the total expected costs of each option against the total expected benefits in monetary terms, to see whether the benefits outweigh the costs, and by how much. CBA is composed of three types of analysis: beneficiary, financial and economic.

- *Beneficiary analysis* identifies the main beneficiaries of a project, classifying them according to broad income categories (poor, near poor, non-poor), gender, and on the likely effects of the proposed activities (direct, less direct and indirect effects).

- *Financial analysis* identifies the benefits and costs that will accrue to the beneficiaries if a project is undertaken. Financial analysis is necessary to ensure that the potential beneficiaries will have an incentive to participate in the project. Additionally, financial analysis will quantify the financial costs that will have to be borne by the partner country government and/or civil society during the life of the activity and thereafter.
- *Economic analysis* identifies the benefits and costs that will accrue to the host country. It adjusts the financial costs to eliminate transfer payments, such as subsidies and taxes, and uses economic prices that reflect the opportunity cost of resources.

Cost-Effectiveness Analysis (CEA) is a form of economic analysis that compares the relative costs and outcomes (effects) of two or more courses of action. CEA compares (mutually exclusive) alternatives in terms of the ratio of their costs and a single quantified, but not monetized, effectiveness measure. Cost-effectiveness analysis is distinct from cost-benefit analysis, which assigns a monetary value to the measure of effect.

6. Meta-evaluation or evaluation synthesis

The main aim of such synthesis is to facilitate learning and use of evaluation findings by identifying and capturing accumulated knowledge on common themes and findings across a variety of situations. Synthesizing existing evaluation material allows evaluation evidence to be packaged and fed into the decision-making process when neither the time nor resources are available to undertake a full-fledged evaluation.¹⁸

Meta-evaluation is a type of evaluation that aggregates findings from a series of evaluations. It can also be an evaluation of an evaluation to assess the performance of the evaluators.¹⁹

Meta-analysis involves the pooled statistical analysis of several similar studies.²⁰ An early application of this analysis for agricultural evaluation can be found at <http://www.ifpri.org/publication/meta-analysis-rates-return-agricultural-r-d>.

¹⁸ International Fund for Agricultural Development (IFAD). *Evaluation Policy* (Rome: IFAD, 2011) p. 22.

¹⁹ See <https://www.globalhivmeinfo.org/Lists/Glossary/DispForm.aspx?ID=41>.

²⁰ See <http://ntp.niehs.nih.gov/ntp/roc/twelfth/Glossary.pdf>.

7. Performance evaluation or process evaluation

Performance evaluations focus on descriptive and normative questions: what a particular project or programme has achieved (either at an intermediate point in execution or at the conclusion of an implementation period); how it is being implemented; how it is perceived and valued; whether expected results are occurring; and other questions that are pertinent to programme design, management and operational decision-making. Performance evaluations often incorporate before-after comparisons, but generally lack a rigorously defined counterfactual.²¹

8. Social impact assessment

Forms of quantitative and qualitative analysis, usually of secondary sources that are undertaken before project design to ensure social factors (such as gender or vulnerability) are integrated into or addressed through project design.²²

9. Geospatial analysis

Geospatial analysis is an approach to applying statistical analysis and other informational techniques to data which has a geographical or geospatial aspect. Geospatial analysis would typically employ software capable of geospatial representation and processing and apply analytical methods to terrestrial or geographic datasets, including the use of geographic information systems.

²¹ USAID. "USAID Evaluation Policy" (2011) p. 2.

²² Adapted from the USAID Automated Directives System (ADS) at <http://www.usaid.gov/who-we-are/agency-policy/about-ads>.

ISBN-978-92-9072-420-9



9 789290 724209