



**FEED THE FUTURE**

The U.S. Government's Global Hunger & Food Security Initiative

# **Feed the Future Learning Agenda Literature Review: Improved Gender Integration and Women's Empowerment**

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## LIST OF ACRONYMS

5DE	Five Domains of Empowerment
AGSF	Agricultural Marketing, Management and Finance Service (FAO)
AWARD	African Women in Agricultural Research and Development
BFS	Bureau for Food Security
CAPRI	CGIAR Program on Collective Action and Property Rights
CGIAR	Consultative Group on International Agricultural Research
CRSP	Collaborative Research Support Program
DFID	Department for International Development (UK)
EPTD	Environment, Production and Technology Division (IFPRI)
ERI	Enabling rural innovation
FAO	Food and Agriculture Organization of the United Nations
FCND	Food Consumption and Nutrition Division (IFPRI)
G8	Group of Eight
GAG	Gender Asset Gap
GAAP	Gender, Agriculture and Assets Project
GDP	Gross Domestic Product
GPI	Gender Parity Index
GROOTS	Grassroots Women Operating in Sisterhood
HKI	Helen Keller International
ICRW	International Center for Research on Women
ICT	Information and Communications Technology
IDS	Institute of Development Studies
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IIFET	International Institute of Fisheries, Economics and Trade
IIM	Indian Institute of Management
IIRR	International Institute of Rural Reconstruction
ILO	International Labor Organization
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
LI-BIRD	Local Initiatives for Biodiversity Research and Development
M&E	Monitoring and Evaluation

MDG	Millennium Development Goal
MEAS	Modernizing Extension and Advisory Services
NBER	National Bureau of Economic Research
NGO	Nongovernmental Organization
OPHI	Oxford Poverty and Human Development Initiative
R&D	Research and Development
ROSCA	Rotating Savings and Credit Association
SAMARPAN	Strengthening the Role of Women and Civil Society in Democracy and Governance
SANREM-CRSP	Sustainable Agriculture and Natural Resource Management-CRSP
SDC	Swiss Agency for Development Cooperation
UHM	Unitary Household Model
UK	United Kingdom
UN	United Nations
UNESCO	UN Economic, Social and Cultural Organization
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
WEAI	Women's Empowerment in Agriculture Index

## EXECUTIVE SUMMARY

To ensure that impact evaluations being undertaken for the U.S. Government's Feed the Future initiative are well-conceived, build on existing evidence, and fill critical evidence gaps, the Bureau for Food Security (BFS) of the United States Agency for International Development (USAID) is supporting a comprehensive assessment of existing evidence and gaps in knowledge for each of six themes covered by the Feed the Future Learning Agenda. Staff of USAID in headquarters and country missions and staff of USAID's implementing partners are expected to be the primary users.

The stated aim of Feed the Future is to tackle the root causes of global hunger and poverty through inclusive agriculture sector growth and improved nutritional status. This paper summarizes available evidence that relates to key questions for the Feed the Future Learning Agenda theme on improved gender integration and women's empowerment.

This study first reviews key concepts, definitions, and recent development practice relating to women's empowerment. It then examines evidence of impact of agricultural production interventions and productivity-nutrition interventions on women's access to assets, for value chain commercialization interventions on women's employment opportunities, and for capacity building interventions on women's participation in leadership roles. Finally, it documents evidence of the impact of women's empowerment on the reduction of poverty and hunger.

**Terminology.** The gender literature uses a number of terms in ways that may not be familiar to persons not well acquainted with it. Terms such as agency, bargaining power, domains of decision-making control, voice, gender parity, gender equality, empowerment, gender integration, targeting, and gendering are examples. Definitions for these examples, as used in this paper, are given in Section II.

**Role of Women's Empowerment in Development.** Women have an important role to play in development and the potential to make significant contributions to the growth of the agricultural sector and the reduction of poverty and hunger. Women's empowerment is important for the allocation of resources, the well-being of children, and changes in institutions and policies. When women have leadership opportunities, evidence indicates that they tend to be inclusive of all community and household members, with specific attention to women's and children's welfare and women's livelihood strategies.

Yet women are constrained in their abilities to contribute to the agriculture-based livelihood strategies of their households, provide leadership for rural communities, and contribute to development at large. This is primarily because cultural norms limit their access to and ownership of assets, their bargaining power within their households, and to lesser extent, because women's freedom of movement and ability to express views in ways that will be heard (voice) is limited in public spheres.

**Development Policy and Gender.** Over the past 30 years, policy makers and development practitioners have increasingly acknowledged the importance of gender equality and women's empowerment to development. In response, development programs have attempted to incorporate gender by including some female participants or attempting to target women with interventions that have worked for men. Examination of the gendered constraints facing women producers and marketers, and the design of interventions to address those constraints are, however, not yet common practices.

In March 2012, USAID issued a policy statement on gender that outlined one of three intended outcomes of female empowerment as "increasing the capability of women and girls to realize their rights, determine their life outcomes, and influence decision-making in households, communities, and societies" (USAID, 2013a). A consensus is now emerging that gendering interventions (addressing

gender disparities), rather than targeting interventions (simply including women beneficiaries) is the key to empowering women.

**Characteristics of Non-Gendered and Gendered Interventions.** Programs and interventions may be either targeted or non-targeted, and they may be either gendered or non-gendered. A non-targeted intervention delivers project benefits without regard to the gender of the beneficiaries. A targeted intervention seeks to reach women directly, either by aiming at parity between men and women at the project level, or by incorporating activities that are designed specifically for women beneficiaries.

Non-gendered interventions do not account for cultural norms and constraints that may prevent women from taking full advantage of project opportunities or reaping the benefits. True equality and empowerment are beyond their scope. By contrast, in gendered interventions, the expansion of women's independent and joint domains of asset control and concomitant benefits is an important objective, and the interventions are specifically designed and implemented to address gender disparities in the larger cultural setting.

**Measurement of Women's Empowerment.** Women's empowerment is not a directly observable or measureable phenomenon. Disempowerment manifests itself in lack of control over resources, limited leadership skills, and, in agricultural production, little decision-making power and lack of access to inputs. A recent review of empirical studies found that the monitoring and evaluation of policies and programs to empower women was not a priority in development interventions, and that many indicators of women's empowerment or disempowerment were proxy measures that described either enabling conditions for women's empowerment (e.g., access to and control over assets), or outcomes of women's empowerment (e.g., increased intra-household bargaining power and greater control over benefits deriving from the use of assets). USAID recently introduced the Women's Empowerment in Agriculture Index (WEAI) as a tool for monitoring women's empowerment at the household level for countries benefiting from Feed the Future (USAID, 2013c).

**Impact of Agricultural Productivity Interventions on Use of Production Inputs.** The Food and Agriculture Organization of the United Nations (FAO) has reported statistical evidence of a gender gap in access to and control of assets and in use of agricultural inputs, and the Gender Asset Gap (GAG) project and the Gender, Agriculture and Assets Project (GAAP) have conducted surveys that detail the nature of the assets gap.

Productive assets can be natural, physical, financial, human, or social, but a discussion of inputs, defined in such a broad way, falls outside the scope of this paper. Agricultural productivity interventions are taken here to mean interventions that introduce improved varieties and breeds or better technologies and practices for soil management, animal care and feeding, weed and pest control, or irrigation. Such interventions typically demonstrate and extend information about new technologies, and support the development of delivery systems for the inputs required to adopt the innovations being recommended.

Evidence suggests that non-targeted, non-gendered agricultural productivity interventions based on the Unitary Household Model (UHM) have little impact on women's use of production inputs because their objectives and constraints are often not fully taken into account. Targeting of non-gendered interventions may increase the immediate benefits to women, but is unlikely to make a sustainable difference unless women's constraints to accessing land, credit, extension services, and markets are also addressed.

**Impact of Production-Nutrition Interventions on Agricultural Production, Control of Income, and Use of Time.** Productivity-nutrition interventions that support women's participation in agricultural production empower them in a variety of ways. Non-gendered interventions have had mixed results with increasing women's level of income, but almost all of the gendered interventions reviewed



in this report succeeded, whether they were focused on agricultural productivity, nutrition, value chain commercialization, or leadership. Evidence shows that targeted, non-gendered productivity interventions that emphasize income generation for both women and men have the potential to empower women through the income-to-status path. This occurs when the intervention increases women's income-earning capacity, which in turn increases women's bargaining power within the household and community.

Non-targeted, non-gendered productivity-nutrition interventions have limited impact on women's ability to allocate increases in household income because their bargaining power remains limited. A number of reports show evidence of gendered productivity-nutrition interventions that have increased women's control over income, although increased production and/or generation of income has not always been used to the nutritional benefit of the household to the extent anticipated by the project.

Few non-gendered interventions collect data on women's time, so there is little evidence on the impact of interventions on women's time and labor burden. Findings from specific interventions suggest that the impact depends on whether a new technology reduces or increases demands on women's time, but the cases reported are insufficient in number to permit generalization. On the other hand, there are numerous examples of men's adoption of innovations resulting in increased demands on women's time, both in absolute terms and in terms of prioritizing men's cash crops at peak periods in the agricultural calendar at the expense of women's time on crops in their own domains of control and benefit.

**Impact of Value Chain Commercialization Interventions on Women's Employment Opportunities.** Despite the constraints, women's participation in the labor market is an area of progress in women's empowerment. However, there are still parts of the value chain in which further income generating opportunities for women would be beneficial.

Out of the nine developing regions, only three have met or are expected to meet the Millennium Development Goal (MDG) target of equality in share of paid employment by 2015. Progress is insufficient to reach the target if prevailing trends persist in the remaining six regions, which are the poorest regions of the world. Nevertheless, it is encouraging to note that even in Sub-Saharan Africa, the poorest region of the world, the ranking is medium.

Success factors identified in the literature include the following.

- Interventions in value chain commercialization that integrate both women and men in the planning stages and assure that mutually beneficial enterprises are selected to mitigate against the risk of men taking over women's enterprises once they have become profitable.
- Interventions to promote changes in national labor laws create an enabling environment for improving women's participation in value chain commercialization.
- Interventions that incorporate men in ways that encourage them to take on more household care activities mitigate against the negative effects of women's increased paid employment on their overall workload.

**Impact of Capacity-Building Interventions on Women's Participation in Leadership Roles.** There is little evidence to show that affirmative action programs increase the presence of women in effective leadership roles. However, evidence suggests that livelihood-related interventions that work with groups can increase women's leadership in their communities. There is some evidence that this might be best done in mixed gender groups. If men participate in capacity-building interventions focused on women, they may see effective women role models, or be affected by policies designed by women. This in turn can transform their values and beliefs about women's rights and capabilities. Several case studies report that non-targeted, non-gendered interventions that start with community-based problem-

solving techniques have good success in increasing the leadership roles of women. There is a risk that women's groups established with external support will be taken over by elite, educated women leaders who do not allow other women in the group to reach their potential, and that women leaders in externally supported community-based groups will not be able to sustain their leadership roles once the external support is withdrawn.

**Impact of Women's Empowerment on Reduction of Poverty and Hunger.** Various sources indicate that women can make significant contributions to poverty and hunger alleviation. There is a growing consensus in the literature that incorporating gender in the design and implementation of development interventions is pivotal to success in alleviating poverty and hunger. There is evidence that women's capacities are a key factor in determining whether a variety of agricultural interventions achieve positive nutrition outcomes. Women can contribute to reducing poverty and hunger in four critical activities: agricultural production, value chain commercialization, good household nutrition, and community leadership. However, their actual contributions are far below their potential.

**Broader Questions for the Theme.** An absence of gender-relevant data is at the foundation of evidence gaps. A more systematic effort is needed to collect sex-disaggregated data for as many proxy indicators of women's empowerment as possible. Analytical studies on the best measures of women's bargaining power and the factors that affect women's participation in political processes and their ability to accumulate resources and wealth should be given high priority.

## I. ABOUT THE LEARNING AGENDA

*The objective of this paper is to summarize available evidence on key questions for the Feed the Future Learning Agenda theme on improved gender integration and women's empowerment, and document expert opinion on gaps in the scientific literature for this theme that are in most urgent need of attention.*

Feed the Future is an initiative of the U.S. Government, undertaken in response to the commitment of global leaders at the Group of Eight (G8) Summit in L'Aquila, Italy in July 2009, to "act with the scale and urgency needed to achieve sustainable global food security." Feed the Future aims to tackle the root causes of global hunger and poverty through inclusive agriculture sector growth and improved nutritional status, especially of women and children. Feed the Future aims to achieve these objectives through several intermediate results detailed in the Feed the Future Results Framework: sustainably increasing agricultural productivity, expanding markets and trade, promoting increased public and private investment in agriculture and nutrition, supporting vulnerable communities and households to increase resilience, increasing access to diverse and quality foods, promoting improved nutrition-related behaviors, and improving use of maternal and child health and nutrition services. The Feed the Future approach focuses on smallholder farmers, especially women.

An important objective of the Feed the Future monitoring and evaluation (M&E) component is to generate evidence to address unanswered questions in the development literature pertaining to the causal linkages in the Feed the Future Results Framework. In line with USAID's new Evaluation Policy launched in January 2011, Feed the Future's M&E approach emphasizes generating, learning from, and sharing evidence and results that can inform future programming and investments.

To organize this work, USAID/BFS led the development of a Feed the Future Learning Agenda in the first half of 2011 (USAID, 2011), comprising a set of key evaluation questions related to the causal linkages in the Feed the Future Results Framework. These questions were designed to be answered using evidence-based hypothesis-testing, primarily through impact evaluations but also through performance evaluations, economic analysis, and policy analysis. In June 2011, key experts from implementing partners and other stakeholders (U.S. Government agencies, universities, research centers, non-governmental organizations (NGOs), think tanks, the private sector, and others) met to review and validate the key questions and the thematic groupings into which they had been organized to form the Feed the Future Learning Agenda. These stakeholders also provided preliminary design ideas for impact evaluations to be conducted to address these questions.

To ensure that Feed the Future impact evaluations were well conceived, build on existing evidence, and fill critical evidence gaps, BFS is supporting a comprehensive assessment of existing evidence and gaps in knowledge within the framework of the Feed the Future FEEDBACK project. This assessment includes development of annotated bibliographies and literature review papers organized around the six themes of the Learning Agenda:

1. Improved Agricultural Productivity;
2. Improved Research and Development;
3. Expanded Markets, Value Chains and Increased Investment;
4. Improved Nutrition and Dietary Quality;
5. Improved Gender Integration and Women's Empowerment; and
6. Improved Resilience of Vulnerable Populations

Annotated bibliographies for each of the Learning Agenda themes have already been prepared. Literature review papers for each theme, including this one, present expert analyses of the current state of the scientific evidence for the key questions related to each theme and offer additional guidance on the gaps remaining to be filled by the impact evaluations. At a later stage, the assessment will also include activities aimed at articulating and demonstrating how new evaluations and studies conducted under the auspices of the Feed the Future M&E program contribute to filling the gaps in the body of evidence identified in this and the other five expert papers on the Learning Agenda themes.

## II. ABOUT THE THEME

### Terminology

The gender literature uses a number of terms in ways that may not be familiar to persons not well-acquainted with it. Terms such as agency, bargaining power, domains of decision-making control, voice, gender parity, gender equality, empowerment, gender integration, targeting, and gendering are examples. Definitions for these terms, as used in this paper, are shown in Box 1 (adapted from Malhotra & Shuler, 2005; USAID, 2012; Farnworth, Sundel, Nzioki, Shivutse & Davis, 2013; USAID, 2013b).

### Role of Women in Development

Women have an important role to play in development and the potential to make significant contributions to the growth of the agricultural sector and the reduction of poverty and hunger. The World Bank (2012), in an extensive study of the literature, found that in terms of efficiency, women's empowerment is important for the allocation of resources, the well-being of children, and changes in institutions and policies. There is evidence that women's empowerment is particularly important for development when they have: (1) decision-making control over agricultural production activities and access to productive resources; (2) control over the use of household income; (3) leadership roles in the community; and (4) the ability to manage their own time (Lastarria-Cornhiel, 2006; Allendorf, 2007; Alkire et al., 2012).

#### Box 1. Key Terms from the Gender Literature

**Agency** for both women and men refers to the capacity for independent choice and action.

**Bargaining power** refers to a person's ability to negotiate from positions of strength within and beyond the household and achieve outcomes that meet his or her needs.

**Domains of control** are areas of decision-making authority. An independent domain of control is one in which only men or only women control the decisions. A joint domain of control is one in which men and women make decisions jointly.

**Voice** refers to the ability to express views in ways that will be heard in the household, community, and nation.

**Gender parity at project level** refers to equal participation and sharing of benefits by women and men.

**Gender parity under the law** refers to equality of legal rights and responsibilities for both women and men.

**Gender parity in the larger cultural setting** refers to a situation in which women and men are on a par with each other with respect to their agency, bargaining power, voice, intra-household domains of decision-making control, distribution of assets and income, and use of time.

**Gender equality** means more than parity in numbers or laws on the books. It is the state that is achieved when males and females have similar freedoms and quality of life, that is, when there is gender parity in the larger cultural setting.

**Empowerment** refers to the process by which both women and men expand their freedom of choice and action. Female empowerment is achieved when women and girls acquire the power to act freely, exercise their rights, and fulfill their potential as full and equal members of society. While empowerment often comes from within, and individuals empower themselves, cultures, societies, and institutions create conditions that facilitate or undermine the possibilities for empowerment.

**Gender integration** refers to the process of identifying, and then addressing, gender inequalities during program and project design, implementation, and monitoring and evaluation.

**Targeting vs. gendering.** Targeting is the mechanism projects use to reach women beneficiaries, whereas gendering is the mechanism projects use to address gender disparities between women and men in the larger cultural setting in order to devise strategies to increase women's empowerment.

**Unitary household model (UHM)** assumes that decisions are made solely by a household head (or by the household acting as a single unit) and that there is no differentiation among household members in objectives, constraints, costs of adoption, decision-making control, or access to benefits.

Women bring valuable perspectives, preferences, priorities, and objectives to leadership roles in development (Datta, 2003; Duflo, 2011). Evidence indicates that their leadership tends to be inclusive and affects all community and household members, with specific attention to women's and children's welfare and to women's livelihood strategies (Quisumbing & Pandolfelli, 2010). The perspectives that women in leadership roles bring in the following areas are particularly important for reduction of poverty and hunger:

- Hunger alleviation (Thomas, 1990; Quisumbing & Meinzen-Dick, 2001; Morrison, Raju, & Sinha, 2007; World Bank, Food and Agriculture Organization of the United Nations (FAO) & International Fund for Agricultural Development (IFAD), 2009a);
- Food security (International Food Policy Research Institute (IFPRI), 2007; FAO, 2011; Bolwig, 2012);
- Resource sustainability (Thomas-Slayter & Sodikoff, 2001; Acharya & Gentle, 2006; FAO, 2013b); and
- Resilience in the face of economic disasters and climate shocks (Morrison et al., 2007; Nelson & Stathers, 2009; World Bank, 2011a).

Yet women are structurally and disproportionately constrained in their abilities to contribute to the agriculture-based livelihood strategies of their households, provide leadership for rural communities, and contribute to development at large. This is primarily because cultural norms limit their ownership of and access to assets, domains of independent and joint control and concomitant benefits, and bargaining power within their households, and to lesser extent because women's freedom of movement and voice are limited in public spheres (Doss & Morris, 2001; King & Mason, 2001; Van Koppen, 2002; Datta, 2003; Bushamuka et al., 2005; Opare, 2005; Allendorf, 2007; Morrison et al., 2007; Goldstein & Udry, 2008; Iannotti, Cunningham, & Ruel, 2009; FAO, IFAD & International Labor Organization (ILO), 2010; Hill & Vigneri, 2010; Quisumbing & Pandolfelli, 2010; World Bank, 2011b; Ragasa, Berhane, Tadesse, & Seyoum, 2012). Women's leadership in collective action also affects their access to communal resources, such as communal lands or irrigation (von Braun, Puetz, & Webb, 1989; Van Koppen, 2002).

## **Development Policy and Gender**

Gender parity at the project level has been an often unstated and rarely achieved goal of agricultural development programming since the 1980s (Feldstein & Poats, 1989a; Feldstein & Poats, 1989b; Sustainable Agriculture and Natural Resource Management (SANREM) Collaborative Research Support Program (CRSP) (SANREM-CRSP, 2012). Even when parity between women and men is achieved at the project level, inequalities between men and women may still exist in the larger cultural setting. These inequalities often restrict women's ability to participate in livelihood-related activities within and outside the household, and limit their domains of decision-making control and bargaining power relative to men.

Over the past 30 years, the importance of gender equality and women's empowerment to development has been increasingly acknowledged by policy makers and development practitioners (IFPRI, 2007; FAO, 2011; World Bank, 2011b; USAID, 2012). Greater impetus for the integration of gender into development policy has been provided by a pronounced shift in the goals of development away from effects on gross domestic product (GDP) and toward alleviation of poverty and hunger and achievement of food security, sustainability, and resilience. As a result, placing gender equality at the center of development interventions has become a theme in development discourse (World Bank, FAO & IFAD, 2009a; FAO, IFAD & ILO, 2010; FAO, 2011; World Bank, 2011b; KIT, Agri-ProFocus, & International Institute of Rural Reconstruction (IIRR), 2012; USAID, 2012; Farnworth et al., 2013). The fact that

gender equality and the empowerment of women were chosen as the third of the eight United Nations (UN) Millennium Development Goals (MDGs) provides evidence of this.

Development programs have attempted to incorporate gender by including some female participants or attempting to target women with interventions that have worked for men. Sex-disaggregated data are increasingly collected for purposes of monitoring and evaluation, and new frameworks and methodologies for gender empowerment strategies, programming, and measurement are being designed.

Examination of the gendered constraints facing women producers and marketers and the design of interventions to address those constraints are still not common practices. There may also be a tendency to view women mostly through a pro-poor lens because the mainstays of pro-poor development belong to women's independent domains of control, e.g., health/fertility, water safety/nutrition/food security, the care of young children, and education (Smith & Haddad, 2000; King & Mason, 2001; Quisumbing & Meinzen-Dick, 2001; Duflo, 2003; Fonjong & Athanasia, 2007; Gillespie, Harris & Kadiyala., 2012;

Meinzen-Dick, Behrman, Menon & Quisumbing, 2012). This could be inhibiting for women's empowerment, as it neither encourages expansion of their domains of independent or joint decision-making control nor addresses inequalities in intra-household bargaining power or distribution of resources. It also inhibits engaging with women as economic agents or producers.

In March 2012, USAID issued a policy statement on gender that outlined the intended outcome of women's empowerment as "increasing the capability of women and girls to realize their rights, determine their life outcomes, and influence decision-making in households, communities, and societies" (USAID, 2012). A new UN

definition of gender equality, "a state in which an individual's rights, responsibilities, and opportunities are not defined by her or his gender" (UN Women, 2013) is also gaining currency. This state does not depend on equality of outcomes, but rather on equality of the determinants of outcomes (Morrison et al., 2007; Ngo & Wahhaj, 2012; UN Women, 2013).

**Box 2. Intervention Types and Combinations**

	<b>Non-targeted</b>	<b>Targeted</b>
<b>Non-gendered</b>	Neither gender nor cultural norms are taken into account in project design.	Women are targeted on a par with men or on their own, but cultural norms are not taken into account in project design.
<b>Gendered</b>	Gender is not taken into account in project design, but cultural norms are.	Women are targeted on a par with men or on their own and cultural norms are taken into account in project design.

## Characteristics of Non-Gendered and Gendered Interventions

The full range of development programs and interventions has the potential to impact gender equality and women's empowerment, as do enabling laws and policies (Datta, 2003; Acharya & Gentle, 2006; Beaman, Chattopadhyay, Duflo, Pande, & Topalova, 2008; Coppock, D.L., Desta, S., Tezera, S., & Gebru, G., 2011; World Bank, 2011b; Meinzen-Dick, et al., 2012). Programs and interventions may be either targeted or non-targeted, and they may be either gendered or non-gendered (Box 2). There is now an emerging consensus in the recent literature that gendering rather than targeting of interventions is the key to empowering women.

A non-targeted intervention delivers project benefits without regard to the gender of the beneficiaries. A targeted intervention seeks to reach women directly, either by aiming at parity between men and

women at the project level, or by incorporating activities that are designed specifically for women beneficiaries.

Non-gendered interventions do not take into account cultural norms and constraints that may prevent women from taking full advantage of project opportunities or reaping the benefits. True equality and empowerment are beyond their scope. By contrast, a gendered intervention is one that is specifically designed and implemented to address gender disparities in the larger cultural setting, and identifies and addresses “gender differences and inequalities during program and project planning, design, implementation, monitoring, and evaluation” (USAID, 2013a).

In gendered interventions, the expansion of women’s independent and joint domains of control and concomitant benefits is an important objective. To succeed, women’s needs must be ascertained and path dependencies (the limitations on current decisions created by past decisions) must be carefully researched before the interventions are designed (Ngo & Wahhaj, 2012).

Gendered interventions are risky because they may threaten the existing distribution of intra-household bargaining power over assets and domains of control of men in ways that trigger a backlash against women. This would likely prevent women from realizing any increase or expansion in their control and benefits, and could even cause them to lose bargaining power compared to the situation prior to the intervention. There is controversy in the literature on how best to minimize this threat. Some authors argue that the change should not threaten the balance of bargaining power at all, i.e., the change promoted should already be within women’s and men’s joint domains of control, or affect only shared household domains or goods (Ngo & Wahhaj, 2012). Other authors argue that the change should only challenge the balance of bargaining power within a society’s current tolerance level. Such changes would be within women’s independent domains, or perhaps involve an incremental stretching of those domains (Tangka, Ouma, & Staal, 1999; Van Koppen, 2002; Bezner-Kerr, 2005; Bezner-Kerr, Berti & Shumba, 2010; Hillenbrand, 2010; Bhagowalia, Menon, Quisumbing & Soundararajan, 2012; Gillespie et al., 2012; Meinzen-Dick et al., 2012; Domenech & Ringler, 2013).

There is consensus in the literature that interventions intending to increase gender equality and/or women’s empowerment should avoid targeting men’s independent domains. This was suggested by Paolisso, Hallman, Haddad & Regmi (2002), Kaaria, Njuki, Abenakyo, Delve, and Sanginga (2008), Quisumbing and Pandolfelli (2010), and Meinzen-Dick et al. (2012). Quisumbing and Pandolfelli (2010) found evidence of programs that challenged male domains and gender norms too aggressively, resulting in backlash and program failure.

Gendered interventions that work focus on women’s, and often men’s, needs, preferences, goals, and priorities and tend to be tailored to local settings. There is need for “ownership” that involves the participation of women, and often men, as clients in all stages of research, development, and extension (Meinzen-Dick et al., 2012).

Many gendered interventions that build capacity directly related to the technical aspects of productivity, nutrition, and marketing may be of relatively short duration. Gendered interventions that aim to build human and social assets tend to be long-term. However, they introduce changes gradually and incrementally in keeping with the learning curves for project staff members, client households, and communities (World Bank, FAO, & IFAD, 2009a; Crawford et al., 2010; Peterman, Behrman & Quisumbing, 2010; Coppock et al., 2011; KIT et al., 2012). This essential precondition for success presents special challenges for aid agencies which are often unable to make long-term commitments due to their budget cycles.



## Measuring Women's Empowerment

Women's empowerment is not a directly observable phenomenon and has been difficult to measure. Disempowerment manifests itself in lack of control over resources, weak leadership participation and effectiveness, and, in agricultural production, little decision-making power, access to inputs, and remuneration. In many cases, the intra-household bargaining power of women to improve their position is highly constrained by cultural norms that are not amenable to rapid change.

Malhotra, Shuler, and Boender (2002) reviewed empirical studies by region, qualitative and quantitative methodologies, and level (individual, community, and country) and found that the monitoring and evaluation of policies and programs to empower women was not a priority. They also found that many indicators of women's empowerment or disempowerment were proxy measures that described either enabling conditions for women's empowerment (e.g., access to and control over assets) or outcomes of women's empowerment (e.g., increased intra-household bargaining power and greater control over benefits deriving from the use of assets).

Golla, Malhotra, Nanda, and Mehra (2011) propose a series of results frameworks and indicators for measuring women's empowerment based on:

- Access to and control of assets (resources);
- Bargaining power;
- Agency;
- Economic advancement; and
- Norms and institutions.

They also provide a list of reach and process indicators to be applied to interventions to ascertain such aspects as:

- Participation versus success;
- Unintended outcomes;
- Self-confidence and self-efficacy;
- Business practice;
- Use of consumption-smoothing to reduce risk; and
- Prosperity.

Finally, they suggest the use of many other standard indicators that do not seem to be included in most lists of indicators for measuring women's empowerment. Their results-based framework and choice of indicators is based on the experiences of the International Center for Research on Women (ICRW) with three of its project collaborators: UN Development Fund for Women (UNIFEM), Exxon Mobil, and United Kingdom (UK) Department for International Development (DFID).

The Women's Empowerment in Agriculture Index (WEAI) is a recent initiative for measuring women's empowerment/disempowerment at the household level (USAID, 2013c). The WEAI was designed to

monitor Feed the Future interventions (Alkire et al., 2012). The index is survey-based and designed to quantify and analyze women's empowerment, agency, and inclusion in agriculture. It is made up of two sub-indexes. The first addresses women's empowerment in the five domains of empowerment (5DE) compared to men's. These domains cover the degree to which a woman can:

- Make decisions regarding agricultural production;
- Have access to productive resources;
- Have control over income;
- Participate or have a leadership role in the community; and
- Allocate her own time.

The second, the gender parity index (GPI), measures the degree of gender parity between women and men in a household and quantifies the gap so the discrepancy can be addressed and remediated in interventions.

Feed the Future country pilot studies using the methodology in Bangladesh, Guatemala, and Uganda showed that lack of community leadership, lack of control over time, and lack of control over resources were the major contributors to women's disempowerment. In the analysis section of the WEAI Guide, a project on empowering women in Ghana is used as an example of WEAI results and how to interpret them. Tables clearly show the differences between the results for women and men for empowerment, disaggregated into the 10 indicators of the 5DEs. In aggregate, disempowerment was found to be 70 percent for women compared to 7.5 percent for men.

### III. KEY QUESTIONS FOR THE THEME

#### I. Impact of Agriculture Productivity Interventions on Reducing Gender Gaps in Use of Production Inputs

*Have agriculture productivity interventions reduced gender gaps in use of production inputs?*

##### **Introduction**

In this section, the nature of the gender gap in access to assets and productive agricultural inputs is described.

Overall, the evidence reviewed suggests that non-targeted, non-gendered agricultural production interventions based on the Unitary Household Model have little impact on reducing the gender gap in women's use of production inputs. Targeting of non-gendered interventions may increase the immediate benefits to women, but it is unlikely to make a sustainable difference for their empowerment unless the constraints to their access to land, credit, extension services, and markets are also addressed. Gendered interventions (both targeted and non-targeted) and women's self-help initiatives hold out promise of being effective.

Chambers & Conway (1992) identified five categories of assets which are still commonly used today. They are: (1) natural (land, water, forests), (2) physical (buildings, possessions, machinery and equipment, productive inputs), (3) financial (capital, liquidity, credit, insurance, income), (4) human (health, nutrition, education, knowledge and skills, positions of community leadership, time), and (5) social (status, agency, bargaining power, control of decision-making domains). In a sense, all of these asset categories can be considered as production inputs, but a discussion of inputs, defined in such a broad way, falls outside the scope of this paper.

Agricultural productivity interventions are taken here to mean interventions that introduce improved plant varieties and livestock breeds or better technologies and practices for soil management, animal care and feeding, weed and pest control, irrigation, harvesting, and storage. Such interventions are typically concerned with demonstrating and extending information about new technologies, and with supporting the development of delivery systems for the machinery, equipment and variable inputs required to adopt the innovations being recommended. Types of interventions may include participatory research and development activities; provision of public or private extension and advisory services; agricultural credit programs; and support for distribution systems that supply farmers with variable inputs and collect and market farm produce.

Case studies collected by FAO (2011, 2013a) and reported by Farnworth et al. (2013) show that differences in access to inputs between women and men may result in as much as a 20-30 percent difference in yield, increase the agricultural output in developing countries by 2.5-4 percent, and reduce by 12-15 percent the number of undernourished people.

## Statistical Evidence of the Gender Gap

In *The State of Food and Agriculture 2010-11* (FAO, 2011), FAO reviewed available sex-disaggregated data for asset ownership and use of productive agricultural inputs and found that, compared to male-headed households, female-headed households:

- Operate smaller farms, on average only half to two-thirds as large;
- Keep fewer livestock, typically of smaller, unimproved breeds, and earn less from the livestock they do own;
- Have less education and less access to agricultural information and extension services;
- Use less credit and other financial services; and
- Are much less likely to purchase inputs such as fertilizers, improved seeds, and mechanical equipment.

**The Gender Assets Gap (GAG) Project.** The GAG project recently completed a comparative study in Ecuador, Ghana, and Karnataka, India that demonstrated the importance and feasibility of collecting individual-level data on women's and men's access to and ownership of property (Doss, Deere, Oduro & Swaminathan, 2011 and 2013a). The project looks at the share of wealth owned by women and the composition of their asset holdings that they own compared to those owned by men (Doss, Deere, Oduro & Swaminathan, 2013b).

Three measures of asset gaps are estimated: (1) the distribution of ownership within an asset (for each asset, what percentage of men own it independently, what percentage of women own it independently, what percentage of women and men own it jointly); (2) the gap between the percentage of men who own a particular asset and the percentage of women who own the asset; and (3) the proportion of all

owners of a particular asset who are women. The asset gaps measure women's and men's assets in terms of: (1) Partial Community Property (assets acquired prior to marriage plus inheritances that remain individually owned during the marriage and when the marriage ends); (2) Full Community Property (pooled assets); and (3) Separation of Property (individually owned, no matter how acquired, even when the marriage ends in divorce or death) (Doss et al., 2011; Doss et al, 2013a; Doss et al, 2013b; Doss, Deere, Oduro, & Swaminathan, 2013c).

One measure of the wealth gap is estimated, namely, the difference in the share of the value of wealth a woman in a household owns and the share of the value of wealth that a man in the household owns. The wealth gap is aggregated across all assets and captures both quantity of assets and quality of assets by using measures of value (Doss et al., 2013b). The authors note that recognizing women's claims to property acquired within marriage is the key to increasing women's ownership of assets and their intra-household status (Doss et al., 2011).

Data for the four most important physical assets – principal residence, agricultural land and other real estate, assets such as livestock and consumer durables, and nonfarm businesses – show that these assets account for 90 percent of all physical assets in the three countries. In Ecuador, women either individually or jointly own 52 percent of all physical wealth compared to 30 percent in Ghana and 19 percent in India (Doss et al., 2011). Although the datasets do not comprehensively cover individual ownership or use rights for all agricultural inputs, the methodology could be applied for this purpose.

**The Gender, Agriculture and Assets Project (GAAP).** The GAAP project has developed a toolkit for researchers and practitioners to collect asset data (Behrman, Karelina, Peterman, Roy & Goh, 2012). The toolkit provides clear definitions on rights to assets, e.g., access entitlements, decision-making control over use, rights to make claims on output, rights to transfer assets to others, and rights to exclude others from access or use. Gender, land and asset surveys in Uganda (Kes, Jacobs & Namy, 2011) and South Africa (Jacobs, Namy, Kes, Bob & Moodley, 2011) point to different categories of women (wives, female household heads, widows) having different asset rights and vulnerabilities, and also distinguish between: (1) individual ownership; (2) joint ownership with spouses and others; and (3) collective group ownership. Findings from these two surveys suggest that the asset rights of women heads of households (85 percent of whom are widowed, divorced, separated, or cohabiting without marriage) are similar to those of men, and much stronger than those of married women or adult daughters who live in male-headed households. These findings are consistent with those of GAG. In both instances, the gender asset gap appears to be much wider for women in male-headed households than for women who head their own households. In other words, women living in male-headed households tend to have much less ownership and control of assets as compared to women who head their own households.

## **Indirect Evidence for Limited Impact of Non-Gendered Agricultural Productivity Interventions**

Gender equality and women's empowerment have seen only small increases in the three past decades of use of non-gendered agricultural productivity interventions (World Bank, 2011b). For agricultural productivity interventions to have a positive impact on reducing gender gaps in women's access to new technologies and use of improved production inputs, the interventions would need to be designed and implemented with women's special needs and constraints in mind. Quisumbing and Pandolfelli (2010) conclude that specific consideration must be given to ascertain that women have secure independent or joint access to the necessary inputs and control over the requisite domains of activity.

For the past 30 years, most such interventions have been based on the Unitary Household Model (UHM). Under the UHM, it is assumed that adoption decisions are made independently by a household

head (or by the household acting as a single unit) and that there is no differentiation among household members in objectives, constraints, costs of adoption, decision-making control, or access to the benefits.

In most cultures in developing countries, men have the balance of intra-household bargaining power and ownership of assets, while women are faced with numerous cultural restrictions on their domains of control and intra-household bargaining power. To accommodate innovation, women have to negotiate changes in their domains of control to gain access to improved productive assets. However, the UHM does not recognize and support the culturally defined gendered domains of independent and joint control over resources within households that affect the costs women bear and the benefits they obtain from technology adoption. It also does not support consideration of cultural restrictions that hinder women from negotiating such changes, nor does it take into account the specific technical needs, priorities, and preferences of women farmers in research and development (R&D).

Many statistical surveys and analyses assume that the household head will be a man. Hence, they only register the male household head's vocation, labor, and income, as well as his attitudes and behaviors. Some interventions include a small subset of female-headed households (often elderly widows, and also married women with absent husbands) for extension and trials, but they do not reach married women in male-headed households.

Given that the UHM is usually used to predict producers' objectives and constraints, the innovations introduced may not meet women producers' objectives and, even if they do, they may not fit within women producers' constraints and limited endowments of productive assets (Doss, 2001; Doss & Morris, 2001; Kaaria et al., 2008; Weeratunge & Snyder, 2009; Hill & Vigneri, 2010; Peterman et al., 2010; Quisumbing & Pandolfelli, 2010; Ragasa et al., 2012). For the above reasons, Duflo and Udry (2004), Doss (2011) and Ngo and Wahhaj (2012) have concluded that interventions based on the UHM tend to help men more than women.

## Case Study Findings

There are very few case studies that look at impacts of agricultural productivity interventions on reduction of gender gaps in the use of productive inputs (Farnworth et al., 2013). Specific impacts reported in case studies from various African countries include the following.

### Access to extension services and agricultural inputs.

- Interventions based on the UHM target household heads for extension advisory services and farmer-managed research trials, which leads to an implicit bias that favors men (Spring, 1986; Feldstein & Poats, 1989a; Feldstein & Poats, 1989b).
- Non-gendered, non-targeted interventions often do not give women the same inputs that men are offered (e.g., irrigation, hybrid seeds, mechanized tillage, etc.). Spring (1995) reports that in Malawi, research and extension services distributed high-yielding hybrid seeds to men for use in irrigated fields, but women received only a moderate-yielding composite seed technology for use in rainfed household plots.
- FAO (2011) cites studies from Africa that show the impact on women's production due to differences in inputs, including fertilizers and farm equipment. In one study from Kenya, female household heads had 23 percent lower yield than male household heads in maize, beans, and cowpeas due to input differences. In another study from Kenya, women's maize yields were 16 percent lower than men's due to having less fertilizer for production. A study from Malawi found that women's yields were 12-19 percent lower than men's, but the same on the fertile soils of demonstration plots. Two studies from Nigeria showed a 66

percent lower yield for women due to input differences on rice and lower cassava yields than those of men due to lower quality and lower usage of fertilizers than men. In Ghana, a study showed that women are as efficient growers and earners as men in maize and cassava, but they cannot maintain land fertility due to gaps in inputs.

These studies of current conditions highlight the potential of projects to increase women's use of agricultural inputs. FAO states that closing input gaps could increase yields by 20-30 percent, and lift 100-150 million people out of hunger. It would increase the agricultural output in developing countries by 2.5-4 percent, and reduce by 12-15 percent the number of undernourished people (FAO, 2011).

- Structural inequalities at the household level hinder the ability of women to make use of project training and extension services (Farnworth et al., 2013). In a 2011 USAID project in Kenya, 48 percent of farmers were women, but only 38 percent of those adopting technologies were women. When asked about the gap, women said that men were still the key decision makers in interaction with officials, development workers, bankers, and traders, and that policies address men in all areas of farming and value chains. A husband said: "What do you know about anything?" to his project-trained wife, while women in the project commented that the training "stays inside our heads," suggesting that they were restricted by husbands from implementing their agricultural knowledge.
- There is evidence of technical innovations that have been extended to both women and men producers, but that were not adopted by women because the innovations inadvertently challenged cultural norms regarding the role of women and resulted in backlash and program failure (Quisumbing & Pandolfelli, 2010). For example, women rice producers in the Gambia were not able to adopt pump irrigation technology because cultural norms stipulated that women could only control rain-fed or partially irrigated land (Von Braun et al., 1989; Van Koppen, 2002). In the case of the extension of an improved variety of maize seed together with chemical fertilizer in Ghana, Doss and Morris (2001) found that women's adoption was lower than men's due to their unequal access to complementary inputs like land, education, and agricultural extension advisory services.
- Adoption of technical innovations introduced by non-gendered interventions can cause a change in control and benefits that actually reduces women's participation in agricultural production. There are numerous cases of women producers adopting productivity-enhancing techniques only to find that their production activities became so profitable that they lost control because husbands and other men took them over. For example, in Northern Ghana in a targeted but non-gendered intervention, 28 women were given land by the headman and other men in the village and became research-trial cooperators and adopters for newly introduced conservation agriculture techniques (no-tillage with mulch and cover crops) (SANREM-CRSP, 2012). After a well-designed intervention in which both men and women were trained by the project staff, the women succeeded in increasing yields in an arid climate. However, the next year, they all had to drop out when the men took the land away for their own production.<sup>1</sup> This is an especially problematic area in programs that link smallholders to markets and those that promote the conversion of production to the technical standards of the export market (Peterman et al., 2010; Bolwig, 2012; Meinzen-Dick et al., 2012). Women's participation in agricultural production might

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<sup>1</sup> This was remedied two years later due to gendered interventions by the project staff. Women group leaders and their members purchased land, used the techniques, and some of them produced enough income to double their land holdings.

also be from women's domains of independent and/or joint control to men's own control domains.

- A case study from Kenya demonstrates, however, that women's own initiatives to empower themselves, e.g., through formation of self-help groups, can enable them to take advantage of non-gendered extension and training programs and increase their access to more productive agricultural inputs. In this example, married women from other parts of the country found themselves alone and unsupported by their new communities when their husbands left or died. To support each other, they formed the Nyi-Loka Women's Group, set up an emergency fund to help each other out with unexpected expenses, and started a savings scheme for investing in livelihood improvements. They obtained support from a Ministry of Agriculture fund and used it to hire private extension workers to teach them improved farming skills. They also benefited from participation in farmers' field schools organized by FAO, which taught them income-generating skills. With their new knowledge, they began offering catering services for parties and funerals. This enabled them to rent extra land each year, which they improve and use to produce cash crops. They are now saving so that they can eventually buy their own land and invest in longer-term improvements without the risk that the improved land will be taken over by the men (Farnworth et al., 2013).

In recent years, targeted interventions that incorporate women-friendly extension services that are locally accessible and appropriate have become more common. They may involve the distribution of agricultural inputs and technologies, as well as individual or group loans (Doss, 2001; Peterman et al., 2010; Doss et al., 2011; Ragasa et al., 2012). They may also be rooted in local culture. Examples are the traditional "rotating gift" societies and rotating savings and credit associations (ROSCAs – the so-called "merry-go-rounds" where funds may be used for agricultural inputs and machinery or other larger household purchases). Current innovative extension advisory services that target women, with or without gendering, have been described by Gale, Collett and Freccero (2013), Hird-Younger and Simpson (2013), and Manfre and Nordehn (2013). They include:

- Using information and communication technology (ICT) to deliver timely information on production and marketing to women;
- Using female volunteers as a bridge between extension agents and women farmers; and
- Increasing the legitimacy and inclusivity of women's groups for extension delivery.

**Access to Credit.** Women gain access to credit through intra-household endowments and transactions (Ngo & Wahhaj, 2012); informal social networks (Meinzen-Dick & Di Gregorio, 2004; Bezner-Kerr, 2005; Bhattamishra & Barrett, 2010); formal collective action groups (Pitt, Khandker, Chowdhury & Millimet., 2003); and formal market channels (Morrison et al., 2007). Access to and ownership of land is often a precondition for access to credit, productivity inputs such as improved seeds and fertilizers, farm equipment, and receiving extension advisory services (World Bank, FAO, & IFAD, 2009a; FAO, IFAD, & ILO, 2010; Peterman, et al., 2010).

Non-gendered productivity-nutrition interventions have not had a significant impact on women's use of credit, decision-making related to credit, and empowerment related to credit. Non-gendered programs that provide access to credit may be very successful in increasing the general availability of credit. However, if they neglect to bridge the gender gap to allow women the same degree of control as men over assets used to secure credit, and remuneration from investments made with borrowed funds, they may actually be detrimental to women's empowerment. This is because the preferential provision of

credit to men often increases their bargaining power relative to women's, while leaving the level of women's empowerment unchanged in absolute terms, representing a diminution of power in relative terms (Pitt et al., 2003; World Bank, 2011b).

Several non-gendered interventions have facilitated formation of formal collective action micro-credit groups or private sector efforts to offer formal credit to collective action groups and individuals. However, for large numbers of women to take advantage of these opportunities, they would need to close gender gaps relating to: (1) participation in collective action groups; (2) access to information about credit and product markets; (3) ability to interact outside of the household and community; and (4) ability to control intra-household decision-making domains, including about choice of investment and repayment of loans (Ngo & Wahhaj, 2012).

There is evidence of a greater potential for gendered than non-gendered interventions to increase the level of women's access to and control over credit (Datta, 2003; Tesoriero, 2006; Coppock et al., 2011; Grameen Bank, 2013). The former includes interventions to increase women's informal access to credit (e.g., intra-household endowments and transactions, informal social networks, collective action savings and credit groups, and local money lenders) and their formal means of access to credit (e.g., microcredit programs, banks, collateral loans, and savings-to-loans instruments). Nevertheless, women's use of credit remains low in many places (World Bank, 2011b).

Some gendered interventions that have increased women's access to and control over credit have worked with women-dominated micro-enterprise and micro-credit collective action groups (Datta, 2003; Tesoriero, 2006; Morrision et al., 2007; Coppock et al., 2011). Others have increased women's access to private sector credit by increasing their knowledge of the credit market and the banking system, as well as by facilitating their linkages to private sector agencies whose services are women-friendly in that they have women employees to serve women customers, bring services closer to rural homesteads, target women's preferences and objectives, build programming around women's constraints, and set gender-differentiated quotas (Kulkarni, 2011).

The Grameen Bank in Bangladesh offers both group-based and individual microcredit-type loans to both women and men, but women make up 97 percent of its clients. Although most of these women operate craft-oriented cottage industries rather than agricultural enterprises, their experience is instructive. The bank requires no collateral, takes its services to women at their home, provides training to support women in repaying their loans, and attempts to ensure that when physical investments are made, the assets remain in the name of the woman investor (Pitt et al., 2003; Bernasek, 2011; Kulkarni, 2011; Grameen Bank, 2013). Pitt et al. (2003) found that the Grameen Bank's provision of credit to women increased their level of empowerment. Ngo and Wahhaj (2012) caution, however, that in highly patriarchal societies, interventions should target women's credit for investment in domains of joint decision-making control or household shared goods. In Bangladesh, men may use women's loans for their productive needs (Rahman, 1999), and women may face intense peer pressure from other women to repay loans, sometimes with severe consequences (Dyal-Chand, 2007).

### **Evidence Gaps**

Case studies collected by FAO (2011, 2013a) and Farnworth et al. (2013) show that differences in access to inputs between women and men may result in as much as a 20-30 percent difference in yield. Further studies are needed to verify this difference systematically.

Evidence is needed on types of productive inputs with high specific relevance to women's productivity that could be included in non-gendered agricultural interventions. Peterman et al. (2010) caution against examining only one aspect of the production and marketing system in isolation, such as one input, as this



captures only a partial picture of a complex reality in which synergies exist between farm inputs and relative outputs.

Evidence is also lacking on women's access to agricultural production inputs and technical/scientific knowledge, including:

- Improved seeds and livestock breeds, fertilizer, and agrochemicals;
- Access to mechanization, tools, and farm equipment; and
- Access to technical advice (projects, extension services).

## 2. Impact of Agriculture and Nutrition Projects on Women's Empowerment

*Have agriculture and nutrition projects or approaches effectively improved 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?*

### Introduction

This section provides evidence of the impact of productivity-nutrition interventions on women's empowerment in terms of participation in agricultural production, control over income, and time use. Impacts in terms of decision-making over and access to credit and on leadership in the community are not covered because the literature reviewed here does not treat either topic in the context of productivity-nutrition interventions.

Productivity-nutrition projects focus on increasing household-level dietary diversity and nutritional status, especially for women of reproductive age and children under five. Approaches to this end include increasing consumption of micro-nutrient dense foods through agricultural productivity innovation, nutrition education and counseling, and supporting income-generation activities that result in increased purchases of food and nutrition-related services such as health care, housing, clean water, sanitation, and education (Masset et al., 2011). The main productivity-nutrition interventions are in the areas of bio-fortified crops (especially those fortified with iron, zinc, and vitamin A), home gardens, fisheries and aquaculture, vegetable production for market sale, dairy development, and animal husbandry (Masset et al., 2011), though other types of agricultural productivity interventions can also have an impact on nutrition. Examples covered in this report include wild foods harvesting, food processing technologies for home use that preserve nutrients and, more generally, agricultural productivity interventions with income objectives.

Productivity-nutrition interventions that support women's participation in agricultural production empower them in a variety of ways. Evidence shows that targeted, non-gendered productivity interventions that emphasize income generation for both women and men have the potential to empower women through the income-to-status path. This occurs when the intervention increases the income-earning capacity of women, and the increased income in turn enables the women to increase their bargaining power within the household.

Non-targeted, non-gendered productivity-nutrition interventions have limited impact on women's ability to control household income because their bargaining power remains limited. There are a number of reports of gendered productivity-nutrition interventions that have increased women's control over income, although in some cases, increased production and/or generation of income resulting from an

intervention has not been used to the nutritional benefit of the household to the extent anticipated by the project.

Few non-gendered interventions collect data on women's time or monitor impacts of adoption on women's time, so there is little evidence as to whether interventions have positive or negative effects by decreasing or increasing women's time and burdens. Findings from specific interventions suggest that the impact depends on whether a new technology reduces or increases demands on women's time, but the cases reported are insufficient in number to permit generalization. On the other hand, numerous cases suggest that men's adoption of contract farming has increased demands on women's time because the women are expected to farm the contracted plots as family labor. Moreover, the women are expected to prioritize cash crops cultivated on the contracted plots at peak periods in the agricultural calendar, at the expense of time on crops in their own domains of control and benefit, if need be (Lastarria-Cornhiel, 2006; Bolwig, 2012).

## **Impact on Women's Participation in Agricultural Production and Empowerment**

There is evidence that gendered productivity and nutrition interventions have greater potential than their non-gendered counterparts to increase women's level of participation in agricultural production and household nutrition strategies dependably, directly, and positively. This was the case for all of the gendered productivity interventions reviewed by Hallman, Lewis and Begum (2003), Acharya and Gentle (2006), Crawford et al. (2010), and Coppock et al. (2011), and almost all of the nutrition interventions reviewed by Ayalew, WoldeGebriel, and Kassa (1999), Hagenimana et al. (2001), Kassa, Ayalew, Habtegabriel, and Gebremekel (2003), Bushamuka et al. (2005), Talukder, Sapkota, Shrestha, de Pee, & Bloem (2006), and Iannotti et al. (2009). The only reported failure was an intervention in the Gambia that attempted to increase women's entrepreneurial commercialization in rice through an advanced pipe irrigation system but was prevented from doing so due to strictures prohibiting women's ownership of pump-irrigated land. Although the intervention did not benefit women as much as had been planned, there was some positive indirect impact (Von Braun et al., 1989).

Two examples of gendered productivity interventions that succeeded in empowering women in a variety of ways are:

- A women's mollusk gleaner's group in Nicaragua used the intervention's human and social capacity building to increase their self-confidence, which in turn led to increased production and entrepreneurial income. In addition, the group negotiated a co-management agreement with local government that increased their bargaining power as sellers in the market (Crawford et al., 2010).
- An improved vegetable seeds and fishponds project in Bangladesh had a positive impact on women's empowerment in terms of increased control over resources and decreased exposure to physical harassment, as they had less need to leave the home to gain income (Hallman et al., 2003).

## **Impact on Women's Level of and Control over Income**

**Impact on Income Level.** Although non-gendered interventions have had mixed results with increasing women's level of income, almost all of the gendered interventions reviewed in this report succeeded in this regard, whether they were agricultural productivity, nutrition, value chain commercialization, or leadership interventions (Ayalew et al., 1999; Hagenimana et al., 2001; Datta,

2003; Kassa, et al., 2003; Bushamuka et al., 2005; Talukder et al., 2006; Tesoriero, 2006; Lastarria-Cornhiel, Barahona & Orti, 2008; Iannotti et al., 2009; Weeratunge & Snyder, 2009; World Bank, FAO & IFAD, 2009a; Crawford et al., 2010; Coppock et al., 2011; World Bank, 2011b; KIT et al., 2012; Rattan, Spring & Welsh, 2013).

Evidence shows that targeted, non-gendered productivity interventions that emphasize income generation for both women and men have the potential to empower women through the income-to-status path. This occurs when the intervention increases the income-earning capacity of women and the increased income in turn increases their bargaining power within the household (Dolan & Sorby, 2003; Agricultural Management, Marketing, and Finance Service (AGSF), 2005; Fonjong & Athanasia, 2007; Morrison et al., 2007; Kaaria et al., 2008; World Bank, FAO, & IFAD, 2009a; FAO, IFAD, & ILO, 2010; Duflo, 2011; Doss et al., 2011; KIT, et al., 2012).

Reports of success were found in projects promoting smallholder vegetable commercialization in Ghana (AGSF, 2005) and rice production in Cameroon (Fonjong & Athanasia, 2007). In Kenya, where gendered norms placed dairying in women's domains, smallholder dairying increased women's income, but in Ethiopia, where gendered norms placed dairying in men's domains, it did not. In the latter case, the project resulted in increased income for men (Tangka et al., 1999).

Targeted but non-gendered productivity-nutrition interventions that involve small-scale operations provide little possibility of generating significant income for women's use. For example, participants of women's groups in Tanzania adopted home-based solar dryers to produce vitamin A-rich foods for household consumption. The intervention succeeded in saving women's time, but as the women did not produce or market surpluses, it was unsuccessful in providing income for purchases that would further contribute to their household's nutritional status (Mulokozi, Mselle, Mgoba, Mugyabuso, & Ndossi, 2000). In a similar situation in Kenya, it was reported that adopters strategically restricted their sales to small volumes as the only way they could maintain control over their revenues (Spring, 2000; Hagenimana et al., 2001).

**Impact on Control over Income.** Both nutrition and caregiving tend to be secure and independent domains for women; they are not vulnerable to intra-household take-over, and the amount of women's work relative to men's is high. However, women need control over income to direct resources toward these domains. Non-targeted, non-gendered productivity-nutrition interventions have limited impact on women's ability to allocate increases in household income because they usually lack strategies to change women's restricted bargaining power (Bezner Kerr et al., 2010; Hillenbrand, 2010; Domenech & Ringler, 2013).

There are a number of reports of gendered productivity-nutrition interventions that have succeeded in increasing women's control over income. The Helen Keller International (HKI) home gardening program in Nepal brought about an increase in the percentage of women responsible for keeping the money earned from their home gardens from 67 percent early in the intervention to 88 percent four months later (Talukder et al., 2006). In a study of the same type of project in Bangladesh, Bushamuka et al. (2005) found that the project not only increased women's decision-making control and autonomy to shop in local stores and large markets for small and large household purchases, but also increased their perception of themselves as valuable contributors to the economic well-being of their households.

Leroy, Ruel, Verhofstadt, and Olney (2008) reviewed nine studies of home garden and animal production interventions that focused on nutrition (four home gardening studies, three animal production studies, and two combined studies). The studies reviewed reported mixed results on the impact of the interventions on women's income and/or control over income. Kaaria et al. (2008) studied *Enabling Rural Innovation* projects in Malawi and Uganda in which producer households containing men and women farmers selected the target enterprise. They found that in the village in which pig-production was targeted, men retained 100 percent of the income, while in the two villages in which

potatoes, beans, and/or ground nuts were targeted, an increased percentage of household decisions were made jointly by men and women, compared to three years prior when most decisions were made by men alone. However, women's increase in farming capabilities was not as substantial as men's increase in capabilities, and women were not as able as men to negotiate for favorable prices of potatoes (AGSF, 2005; Kaaria et al., 2008; Leroy et al., 2008).

In some cases, increased production and/or generation of income resulting from an intervention has not been used to the nutritional benefit of the household to the extent anticipated by the project (Ayalew et al., 1999; Bezner Kerr et al., 2010). This was the case, for example, with a market-oriented smallholder dairy intervention in the Ethiopian highlands that focused on the introduction of improved dairy breeds and management practices, and that in the end helped men to control dairying operations while inadvertently bypassing women (Ahmed et al., 2003).

## **Impact on Women's Use of Time**

Interventions can impact women's control over their own time allocation by, for example, increasing their decision-making control over their own daily workload or encouraging men to help with care work to relieve women's workload when women are engaged in income-generating activities (Bushamuka et al., 2005; Iannotti et al., 2009; KIT et al., 2012).

Productivity and capacity building projects implemented under USAID's Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program introduced new conservation agriculture production systems to men and women farmers in 13 countries, with numbers that aimed at parity. The interventions resulted in dramatic reductions in demands of agricultural production activities on women's time and labor, and also increased women's income, allowing some women to purchase land and farm machinery (SANREM-CRSP, 2012). Women in all countries benefited from greatly reduced weeding due to no tillage and the use of cover crops involved in the conservation agriculture technologies being promoted. These methods also eliminated extensive land preparation and plowing by promoting minimum tillage, and also cut women's costs for renting ox-plow services or purchasing tractors more than men's, who tended to own animals and machines already. An unexpected additional benefit for women in Cambodia was increased time to attend community meetings and become community leaders (SANREM-CRSP, 2012).

Interventions can promote time-saving techniques and practices that ease women's time constraints. Doss (2001) and Rattan et al. (2013) argue, for example, that a new production method might require lesser amounts of women's time and labor for a farm operation such as weeding, or it might be less risky, thus providing women with opportunities and risk-reduction strategies. Extension services may make information and small time-saving innovations more accessible to women (Spring, 1996; Doss, 2001; Peterman et al., 2010; Ragasa et al., 2012). Interventions can also be designed to lessen the rigidity of the gendered norms on the intra-household division of labor, especially regarding care tasks.

In theory, time-saving techniques and practices that ease women's time constraints should free them to participate in livelihood-related activities, and removal of restrictions on their physical mobility allows them to engage in activities outside the home such as political activity; own and children's health care; self-help; mutual help; public interactions with the opposite gender; and visiting the parental home, relatives, and friends.

Few non-gendered interventions collect data on women's time or monitor adoption impacts on women's time (Leroy et al., 2008; Peterman et al., 2010), so there is little evidence as to whether interventions have positive or negative effects by decreasing or increasing women's time and labor burdens. Peterman et al. (2010) found that the only aspect of human assets addressed by the agricultural productivity projects that they reviewed was technical knowledge disseminated through extension, and

that few studies focused on women's and men's labor times and social assets. Rattan et al. (2013) found that women's labor in ground preparation and weeding decreased due to using conservation agriculture production systems techniques, but actual amounts were not measured.

There are numerous cases in which men's adoption of innovations has increased demands on women's time both in absolute terms and in terms of placing a priority on men's cash crops at peak periods in the agricultural calendar, at the expense of women's time on crops in their own domains of control and benefit (Doss, 2001).

### ***Evidence Gaps***

For new productivity and nutrition enterprises and technologies to be extended, they need to be developed to fit women's specific needs, preferences, capacities, and constraints. Women have to find that expected benefits outweigh costs, including the transaction costs of implementing the change. There is need for further research on conceptualization and methodologies of design and implementation of gendered interventions and for development of user-friendly methods and tools for making cost-benefit calculations (Van Koppen, 2002; Kulkarni, 2011). For example, while data on income from home gardens are often provided, overall household income is usually not evaluated, and thus it is not possible to determine whether increased garden income derived from non-gendered interventions came at the expense of income from other sources.

There is generally little evidence of the links between non-gendered agricultural production and nutrition interventions, and women's empowerment (Gillespie et al., 2012), and specifically the causal relationship linking nutrition interventions to women's empowerment and the impact of this on production efficiency issues. Often projects do not collect data that can illuminate this relationship effectively enough for guidance on policy formation and scalability. Evidence is also lacking on the impact of productivity-nutrition interventions on women's time use.

### **3. Impact of Value Chain Commercialization Interventions on Access to Employment**

*Have interventions advancing commercialization in value chains affected access to paid employment or types of employment for men and women? Have they led to increases or decreases in unpaid work for men or women?*

#### **Introduction**

In this section, evidence is provided of the impact of value chain commercialization interventions on access to paid employment opportunities for both men and women, and on the amount of their unpaid work. Despite the constraints, women's participation in the labor market is one of the three areas of progress in women's empowerment reported by the World Bank (2012). However, there are still areas in which further income generating opportunities for women would be beneficial (Meinzen-Dick et al., 2012). Examples include removing gender disparities in programs linking smallholders to markets, lifting gendered constraints to adoption of standards, and eliminating discrimination in pay and working conditions for women working as wage laborers.

Out of the nine developing regions, the MDG target of equality in share of paid employment has only been met or is expected to be met by 2015 in three regions. Progress is insufficient to reach the target if prevailing trends persist in the remaining six regions, which represent the poorest regions of the world. Nevertheless, it is encouraging to note that even in the poorest region of the world, Sub-Saharan Africa, the ranking is medium (United Nations, 2012).

Success factors identified in the literature include the following.

- Value chain commercialization interventions that integrate both women and men in the planning stages and select mutually beneficial enterprises mitigate against the risk of men taking over women's enterprises once they have become profitable (Kaaria et al., 2008; Meinzen-Dick et al., 2012; Ngo & Wahhaj, 2012).
- Interventions to promote changes in national labor laws create an enabling environment for improving women's participation in value chain commercialization (Datta, 2003).
- Interventions that incorporate men in ways that encourage them to take on more household care activities mitigate against the negative effects of women's increased paid employment on their overall workload (Paolisso et al., 2002; KIT et al., 2012).
- Interventions that enable women to take advantage of employment opportunities in the rapidly growing agro-industry sector for the export market (Lastarria-Cornhiel, et al., 2008).

#### **Impact of Non-Gendered Value Chain Commercialization**

There is evidence of the success of non-gendered value chain commercialization interventions in several areas: increasing women's opportunities for engagement; increasing women's level of participation as both entrepreneurs and employees; and increasing women's empowerment due to higher status gained from greater engagement and generation of income beyond the household (Dolan & Sorby, 2003; AGSF, 2005; Lastarria-Cornhiel, 2006; Fonjong & Athanasia, 2007; Kaaria et al., 2008; Weeratunge & Snyder, 2009; World Bank, FAO, & IFAD, 2009a; FAO, IFAD, & ILO, 2010; Duflo, 2011; World Bank, 2011b;

KIT et al., 2012). There is also some evidence that non-gendered employment-generating interventions enable women to retain control over employment income (Dolan & Sorby, 2003; Duflo & Udry, 2004; Talukder et al., 2006; Kaaria et al., 2008; World Bank, FAO, & IFAD, 2009a; FAO, IFAD, & ILO, 2010; Meinzen-Dick et al., 2012).

However, pre-existing gender gaps have meant that these increases have been neither as predictable nor as great as they have been for men, and women's market participation has not removed pre-existing gender inequalities in modes of participation. Women also face negative structural consequences of market participation, including increased demands on their time without compensating remuneration, and risk of takeover of successful enterprises in the case of entrepreneurial engagement (Paolisso et al., 2002; Dolan & Sorby, 2003; Kaaria et al., 2008; Weeratunge & Snyder, 2009; World Bank, FAO, & IFAD, 2009b; FAO, IFAD, & ILO., 2010; Hill & Vigneri, 2010; Peterman et al., 2010; World Bank, 2011b; Meinzen-Dick et al., 2012).

Two institutional arrangements supported by value chain commercialization that circumvent market entry barriers and take advantage of economies of scale in production and marketing are contract farming and collective action groups (Spring, 2000; Boughton et al., 2007; Markelova, Meinzen-Dick, Hellin & Dohrn, 2009; Torero 2011).

Women are often prevented from taking advantage of these opportunities to the same extent as men due to structural barriers to market entry. Meinzen-Dick et al. (2012) found market entry barriers to be more restrictive for women's participation in the labor market for large-scale agricultural operations than for women's participation in smallholder markets. In the formal sector, women who succeed in becoming agro-entrepreneurs as a result of assistance from non-gendered interventions provide models for and also assist women smallholder farmers (McDade & Spring, 2005). There is evidence that when women retain income from their own formal sector business, they capacitate their households in many ways (nutrition, health, and education), and provide role models for women farmers (Spring, 2009a; Spring, 2009b).

There is also evidence that, as women contribute more labor to commercial enterprises and paid employment, their contributions to household care and subsistence production are not proportionately reduced. When this happens, there may not be a sufficient replacement of women's unpaid work with household purchases of goods and services from earnings. In such circumstances, there is the possibility that the necessary consequent reduction in quantity and quality of women's contributions, especially to care work, subsistence production, and social networks, will have a detrimental impact not only on poverty and hunger, but also on food security and resilience (Paolisso et al., 2002; Dolan & Sorby, 2003; Kaaria et al., 2008; Nelson & Stathers, 2009; Weeratunge & Snyder, 2009; World Bank, FAO, & IFAD, 2009b; FAO, IFAD, & ILO, 2010; Hill & Vigneri, 2010; Peterman et al., 2010; World Bank, 2011b).

## **Impact of Gendered Value Chain Commercialization Interventions**

Value chain commercialization interventions that emphasize gender equality and women's empowerment focus on lifting the gendered constraints to women's participation in markets and removing the inequalities involved in market participation, largely through investments in women's human and social assets. Guidelines for gendered interventions in value chain commercialization are provided by World Bank, FAO, & IFAD (2009b); FAO, IFAD, & ILO (2010); and Doss et al. (2012). Such interventions effectively build a "gendered bridge" to increase the capacity of women to take advantage of innovations in standard value chain commercialization activities and linkages to supply chains.

Interventions to ease gender inequalities in access to and terms of paid employment include improvements in working conditions and rights for women and girls. Women's labor in high value agricultural export markets has potential to improve women's work both as entrepreneurs and employees, through external stipulations of equality in training and treatment. Movement toward fair trade may be beneficial for women when standards require specific attention to gender issues such as preventing harassment, training in needed skills, and creating leaders. This applies in new high value, export-oriented value chain niches, such as organic flowers, vegetables, spices, and fruit, that can demand and value women's labor more than men's (Spring, 2001; Lastarria-Cornhiel, et al., 2008; Peterman et al., 2010).

Although non-gendered interventions have had success on an aggregate level in increasing women's level of participation in value chain commercialization in both entrepreneurship and employment, there is evidence that gendered interventions have greater potential and more dependability than non-gendered interventions to increase women's level of participation in value chain commercialization, decision-making control, and empowerment related to this and broader intra-household areas. Specific findings of interest include the following.

- Most of the gendered productivity and nutrition interventions reviewed reported increased participation of women entrepreneurs in value chain commercialization (Hallman et al., 2003; Bushamuka et al., 2005; Acharya & Gentle, 2006; Talukder et al., 2006; Iannotti et al., 2009; Crawford et al., 2010; Coppock et al., 2011).
- In their review of 25 case studies of gendered value chain interventions, KIT et al. (2012) found that most cases had examples of women who increased their level of participation in entrepreneurial or employment commercialization. The evidence shows that unlike the case for studies of non-gendered interventions, there were no reports of a gendered intervention that led to men taking over women's activities for commercialization. Gender inequalities in employment were eased, for example, by encouraging men to share the domestic workload while women are engaged in paid employment (Paolisso et al., 2002; KIT et al., 2012). Gendered interventions also increased women's control of income earned through value-chain commercialization (Datta, 2003; Bushamuka et al., 2005; Acharya & Gentle, 2006; Talukder et al., 2006; Tesoriero, 2006; Iannotti et al., 2009; World Bank, FAO, & IFAD, 2009b; Crawford et al., 2010; Coppock et al., 2011; KIT et al., 2012).

### **Evidence Gaps**

More in-depth studies are needed evaluating the costs and benefits of market penetration at all levels by both male and female beneficiaries of non-gendered interventions (Morris et al., 2007; Coppock et al., 2011; Lewis, 2011; Torero, 2011). An attempt should be made to ascertain all costs (including both market and non-market costs) and benefits of market entry supported by value chain commercialization interventions, and to disaggregate them by sex and by plot, if production of agricultural commodities is involved. Data should be disaggregated by: (1) sex and marital status of the market participant; (2) type of activity performed and by whom (employee/hired labor, management, or both); and (3) for labor data, whether male-hired labor, female-hired labor, male family labor, or female family labor (Peterman et al., 2010).



## 4. Impact of Capacity Building and Increased Leadership/ Management Opportunities on Participation of Women in Leadership Roles in the Community

*Have capacity building and increased leadership/management opportunities for women led to increased participation of women in leadership roles in the community?*

### Introduction

In this section, the general characteristics of leadership roles in the community and interventions that facilitate women's community leadership are first described, and then evidence is presented regarding the impact of different types of leadership interventions on women's participation in these roles.

Women may play various leadership roles in the community, including: (1) participation in or leadership of collective-action groups (Bushamuka et al., 2005; Acharya & Gentle, 2006; Coppock et al., 2011); (2) advocacy with local government on behalf of such groups (Crawford et al., 2010); and (3) leadership in the community on a broad spectrum of issues beyond the specific livelihood context (Datta, 2003; Tesoriero, 2006; KIT et al., 2012). Clisby (2005) and Opore (2005) found that a significant constraint to women's participation in leadership roles is their time constraints due to their dual productive and reproductive roles in the household, i.e., generating income and caring for children and other household members. Nevertheless, overall the evidence suggests that providing increased leadership and management opportunities, in particular by supporting formation of collective action groups, does lead to increased participation of women in leadership roles in their communities.

Interventions can facilitate women's community leadership by building their human and social assets (World Bank, FAO, & IFAD, 2009a). Building social assets can involve training and communication, application of democratic principles, consensus building, and dispute resolution. Interventions can also provide opportunities for women to build horizontal linkages to successful peers, informal social networks, formal action groups, and vertical linkages to the private sector and government services (Datta, 2003; Moore, Cisse & Toure, 2005; Crawford et al., 2010; Coppock et al., 2011).

Building human assets can take the form of training in: (1) basic literacy (especially in the official languages of countries); (2) numeracy for micro-enterprises, micro-financing, and budgeting; and (3) technical skills to aid production, marketing, and feeding/nutrition. Most include exercises to increase exposure to problem-solving methods, confidence, and agency, and wider exposure to other communities (Datta, 2003; Opore, 2005; Crawford et al., 2010; Coppock et al., 2011). Among the most successful are the numerous interventions to provide educational opportunities to girls (Morrison et al., 2007). Education is one of only three areas of progress in women's empowerment listed by the World Bank (2012) for MDG 3. There have also been successful interventions focused around the health of pregnant women and children from newborn to age five (Smith et al., 2012).

### Direct and Indirect Leadership Intervention Routes

Leadership interventions can directly or indirectly impact participation of women in leadership roles. The "direct route" is where the same women who participate in intervention programs subsequently increase their community participation and leadership. The "indirect route" is where women who participate in the intervention programs become role models or set policy for a broader group of women.

One example of a direct/first-person intervention is the African Women in Agricultural Research and Development (AWARD) program which offers awards to Sub-Saharan African women agricultural scientists for two years of career development and leadership training. The program, launched in 2008, has so far benefited 320 women from 11 countries (AWARD, 2013), although the long-term impact on their assumption of leadership roles is not yet known.

An example of a gendered and targeted community-based women's leadership development approach that produces good results is the one applied by Grassroots Women Operating in Sisterhood (GROOTS), an international network of women's self-help groups and community organizations with national chapters (Farnworth et al., 2013). GROOTS begins its work in a community by identifying the key issues facing women and then working with them to develop and implement solutions. It then applies its Champions for Transformative Leadership tool to train grassroots women to stand for local committees and boards, and to work effectively within them. This process of moving women out of isolation and into positions of effective leadership works, but it is a long one, and requires sustained commitment from facilitators and their supporting organizations.

An example of the indirect route is the non-targeted, non-gendered USAID/CARE program on Strengthening the Role of Women and Civil Society in Democracy and Governance in Nepal (SAMARPAN), implemented with community forest groups. This program trains facilitators—47 percent of whom are women—who then provide training to individuals and groups at the community level. This results in an increased number of women in committee and leadership positions. Acharya and Gentle's (2006) study of six Community Forestry User Groups in Nepal shows at least one woman participant in SAMARPAN in a leadership role.

If men participate in capacity-building interventions focused on women, they may see effective women role models or may be affected by policies designed by women. This in turn can potentially transform their values and beliefs about women's rights and capabilities. In an empirical study of voter gender bias in West Bengal, India, Beaman et al. (2008) found that voter bias against women was deep-rooted. However, voter exposure to women in political office led to improved attitudes regarding women's effectiveness in political positions and helped both men and women realize that increased leadership opportunities can lead to positive leadership roles for women in their communities.

## **Affirmative Action**

There are examples of affirmative action programs in national and municipal governments, the private sector, and formal community-based organizations. Affirmative action interventions can include quotas or other policies to encourage increased provision of services and remuneration to women. This is done, for example, by Grameen Bank of Bangladesh (Bernasek, 2011; Kulkarni, 2011; Grameen Bank, 2013). Interventions to promote the involvement of women in community-based organizations include for example, Ghana's requirement that a minimum number of committee positions in community-based organizations be reserved for women (Opare, 2005).

Recent changes to several national land-governance institutions required that the representation of stakeholders include women. Such is the case for Niger's Land Commission and Guinea Bissau's National and Sectoral Land Commissions (Bruce & Swallow, 2013). Several women's capacity building programs involve affirmative action in local government. One commune in Mali requires that Community Natural Resource Management Advisory Committees consist of representative stakeholders that include women (Moore et al., 2005).

In West Bengal, India, one-third of village council seats are reserved for women (Beaman et al., 2008), although men may strategize to get women family members elected so they can control them. In Bolivia

in 1994, the People's Participation Law introduced to democratize municipal government specifically intended to integrate gender awareness and equality (Opore, 2005).

There is little evidence to show that affirmative action actually increases the effectiveness of women in leadership roles, however. Opore (2006) found that despite the fact that municipal governments' affirmative action programs in Bolivia typically meet their gender quotas, and that women hold a significant portion of leadership positions, primarily as "Gender Secretaries," women are often not given influential positions and are not able to exercise meaningful power. This is partly due to a lack of formal education (they are less likely to be literate in the national language); married women also lack decision-making power relative to their husbands, which spills over into the work place.

## **Livelihood-Related Leadership Interventions**

Some interventions seek to increase women's general leadership capacities as they apply to their livelihoods. Datta (2003), who studied the Self-Employed Women's Association in Gujarat, India, found that participation in the association increased women's perception of themselves as decision-makers and leaders within their groups, which extended to a sense of self-confidence and capacity in their households and communities. The author also reported evidence of increased respect of women participants by men. Tesoriero (2006), who studied women's micro-credit groups in south India, reported that some participating women increased their community leadership and successfully advocated for change with their local governing bodies, and, in a few cases, successfully ran for office in the local governing body.

Coppock et al. (2011) reported success in a non-gendered, non-targeted participatory action research project with pastoralist communities in the Ethiopian highlands. In this case, the initial community-based problem-solving activities led to the formation of 59 collective action groups during the first five years of operation. Despite their subservient domestic roles, women comprised 76 percent of the founding members and they quickly assumed leadership positions. Capacity building for individuals took three years on average. Despite their illiteracy and lack of business experience, the trained women leaders successfully managed group savings programs, granted thousands of microloans and organized the supply of thousands of livestock to export markets. The authors of this study also noted that their action-oriented process perturbed the existing social system, and that once the potential of women as leaders and entrepreneurs was revealed, men quickly accepted their new roles.

Other livelihood-related interventions combine leadership training and facilitation efforts with productivity, nutrition, and/or value chain commercialization activities to address specific livelihood problems. Success is reported for this type of intervention by Hallman et al. (2003), Bushamuka et al. (2005), Iannotti et al. (2009), Crawford et al. (2010), and KIT et al. (2012). For example, KIT et al. (2012) find cases of women who take on increased leadership positions as part of their livelihood activities and subsequently engage in broader leadership roles within their communities.

Women's leadership is particularly important for gender equality and women's empowerment in collective action institutions that support access to natural productive assets (e.g., water associations for irrigation and use of the "commons" such as forests and aquaculture habitats) (Von Braun et al., 1989; Van Koppen, 2002; Domenech & Ringler, 2013). The evidence suggests that livelihood-related leadership interventions that work with groups can be very successful in terms of increasing the leadership of women in their communities. There is some evidence that this might be best done in mixed gender groups (Acharya & Gentle, 2006; Markelova, et al., 2009; Meinzen-Dick et al., 2012).

Several pieces of cautionary evidence were also found, however. There is a tendency for external intervention to cause women's groups to be taken over by elite, educated women leaders who do not allow other women in the group to reach their potential (Bhattamishra & Barrett, 2010). KIT et al.

(2012) reports such a case with the shea butter value chain in Burkina Faso. In India, gender norms that stipulate that men and women should not interact in public constrain women's potential to become active members of water users associations (Quisumbing & Pandolfelli, 2010). Acharya and Gentle (2006) found that more capacity building is needed to support women to sustain their leadership roles in Nepal's Community Forestry User Groups. This is evidenced by reports of the challenges faced by those women who managed to maintain leadership positions, as well as the number of women who had to leave them.

### **Evidence Gaps**

Greater understanding of the process of building human and social assets is needed to determine whether increasing women's potential contributions to development is best done through building women's assets to achieve specific objectives such as increasing livelihoods or improving nutrition, or through more general interventions to build capacity and leadership. More case studies and comparative studies, as well as solid qualitative and quantitative data collection and analysis, are required.

Data on the membership of women in farmers' organizations, and on the social and political capital/assets women need to rise to leadership positions, would enrich the policy debate.

## **5. Impact of Women's Empowerment on Poverty and Hunger**

*Have programs that emphasize gender equality and the empowerment of women led to reduced poverty and hunger? Does empowering women lead to reduced poverty and hunger?*

### **Introduction**

Evidence reported by various sources indicates that women can make significant contributions to poverty and hunger alleviation (FAO, 2011, World Bank, 2011b; USAID, 2012; FAO, 2013a). Women contribute to reducing poverty and hunger in multiple ways, especially through active participation in four critical activities: agricultural production, value chain commercialization, good household nutrition, and community leadership. Yet there is also evidence that women are structurally and disproportionately constrained in their capacities to make these contributions, and that the level of their actual contributions is far below their potential to help their households, communities, and general food security (Meinzen-Dick & Quisumbing, 2013).

There are no studies that directly measure the impact of empowering women on poverty and hunger. However, some evidence reports impacts on poverty and hunger through interventions that target various proxies for women's empowerment (Quisumbing & Maluccio, 2000). For example, asset-based interventions can increase women's asset endowments and educational level, either absolutely or relative to men, and enable them to participate in productive activities on a more equal basis, contribute more to household income, and devote more resources to providing adequate nutrition to their families. Also, interventions that succeed in increasing women's status, intra-household bargaining power, and community leadership roles can benefit the household. There is also strong inferred evidence that women's empowerment and the nutritional level of their households are directly related (Ruel & Alderman, 2013). This is based on culturally defined gendered norms and responsibilities which typically give women control over nutrition, including food production for home consumption; collection of wild foods and fuelwood; food harvesting, processing and storage; meal planning and preparation; food purchases; family health; and children's education (Mulokozi et al., 2000; Acharya & Gentle, 2006; Talukder et al., 2006).

Smith and Haddad (2000)<sup>2</sup> found, for example that women's empowerment, measured in terms of education and relative mortality, directly accounted for more than half of the reduction in underweight status among children under five.

Through an extensive review of the literature linking gender equality, poverty, and economic growth, Morrison et al. (2007) found that there is "ample evidence to suggest that greater gender equality in [access to and control over] resources...can reduce the likelihood of a household being poor...[and that gender equality plays] a key role in cushioning households from the impact of macroeconomic shocks and keeping households from falling into poverty."

There is a growing consensus in the literature that incorporating gender in the design and implementation of development interventions is pivotal to success in alleviating poverty and hunger. In their overview of the literature linking agriculture and nutrition to gender, Meinzen-Dick et al. (2012) argue that gender roles and gender equity are key factors that determine whether agricultural interventions are successful in achieving positive nutrition outcomes. There is ample evidence of many technical R&D endeavors, extension and advisory services, and marketing and value chain interventions that did not use a gender lens at the outset, but found that a focus on women was the most efficient means for attaining the goals of the project interventions (Coppock et al., 2011). Many other development projects found that their inattention to gender was their downfall (Quisumbing & Meinzen-Dick, 2001). Several key multilateral development organizations have stated that failure to incorporate gender into interventions seriously undermines the effectiveness of the agricultural development agenda, including the reduction of poverty and hunger (World Bank, FAO, & IFAD, 2009a; World Bank, 2011b, FAO, 2013a).

Evaluations of development interventions over the past 30 years show that interventions that are not specifically designed and implemented to lift gendered capacity constraints will not see them lifted. The evidence is overwhelming that they will result in further embedding the structures that maintain gender inequalities and women's disempowerment. On the other hand, pilot studies over the past 10 years show that great potential for gendered interventions to help women by ameliorating constraints to their participation in remunerative productive activity, and that in the process, and if done correctly, such interventions will empower women and help alleviate poverty and hunger. Many gendered agricultural productivity and value chain commercialization interventions that succeeded in achieving their primary objectives also reported women's increased contributions to the nutrition of their households (Hallman et al., 2003; Crawford et al., 2010; Coppock et al., 2011), as did almost all of the gendered productivity-nutrition interventions reviewed by Ayalew et al., (1999), Hagenimana et al. (2001), Kassa et al. (2003), Bushamuka et al. (2005), Talukder et al. (2006), and Iannotti et al. (2009).

## **Impact of Increasing Women's Access to and Control over Assets**

**Credit.** There is evidence that women's access to and control over the use of credit is important for reducing poverty and hunger and that women's access may be more important than men's for children's health, nutrition, and education (Pitt, et al., 2003; Morrison et al., 2007).

**Land.** There is overwhelming evidence that women's access to and control over land is important for poverty and hunger alleviation. Land rights for women "are not primarily marketable assets but rather a secure foundation for sheltering and nurturing their families and making a living" (Lastarria-Cornhiel,

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<sup>2</sup> Smith and Haddad (2000) use econometric analysis to distinguish between the various causal factors to provide evidence of the impact of women's empowerment on poverty and hunger. They have a forthcoming article with more countries, with approximately similar results (Smith & Haddad, 2013, personal communication).

2006, quoted in FAO, 2013a). There is a relationship between owning land and nutritional status because land ownership allows women to have more support from their families, communities, and officials (ICRW, 2006). There is evidence that land ownership also facilitates women's mobility. Swaminathan, Lahoti, & Suchitra (2012) found that in Karnataka, India, owning a house or a plot of agricultural land enhanced women's ability to travel to the market, health center, and other places outside the community, as well as to make decisions about their employment, health, and use of money independently.

**Income.** Women's income and control over income are important for poverty and hunger alleviation because food, nutrition, health, and education tend to be in their domains of responsibility, and women tend to direct income under their control toward these ends. There is strong evidence that women's control over income has a greater impact than men's on households in general, and on children specifically, in terms of improving health, nutrition, and education (Thomas, 1990; King & Mason, 2001; Duflo, 2003; Pitt et al., 2003; Fongong & Athanasia, 2007; Gillespie et al., 2012; Meinzen-Dick et al., 2012). In his analysis of Brazilian data, for example, Thomas (1990) found that unearned income in the hands of a mother has a larger effect on her family's health than income under the control of a father, and that for child survival probabilities the effect is almost 20 times larger.

**Time.** Time was also found to be a key asset for women, but one over which they do not always have full control. There is evidence that women's priorities, particularly in the areas of nutrition, health, care, and education, are aligned with their control over their use of time, and that their control over their time has a significant effect on poverty and hunger alleviation (Doss, 2001; Paolisso et al., 2002; Leroy et al., 2008; Gillespie et al., 2012).

## Impact of Increasing Women's Status and Bargaining Power

A review of the literature shows that poverty and hunger are reduced when women gain more intra-household bargaining power, more control over decision-making, and more autonomy in the use of their time and the income that they generate. There is strong evidence that the level of maternal assets and degree of empowerment within the household are two of the most influential factors determining child health and nutrition (Thomas, 1990; Smith & Haddad, 2000; Pitt et al., 2003; Smith et al., 2003; Webb & Block, 2004; Allendorf, 2007; Morrison et al., 2007; Leroy et al., 2008; Bhagowalia et al., 2012; Gillespie et al., 2012; Ruel & Alderman, 2013).

Beyond the household, women's participation in community leadership has a strong influence in setting the agenda and catalyzing action for community development. Women bring valuable perspectives, preferences, priorities, and objectives to leadership roles in development (Duflo, 2011). Women's roles and strategies in: (1) poverty and hunger alleviation (Thomas, 1990; Quisumbing & Meinzen-Dick, 2001; Morrison et al., 2007; World Bank, FAO, & IFAD, 2009a); (2) food security (IFPRI, 2007; FAO, 2011; Bolwig, 2012); (3) resource sustainability (Thomas-Slyter & Sodikoff, 2001; Acharya & Gentle, 2006; FAO, 2013b); and (4) resilience (Morrison et al., 2007; World Bank, 2011a) are particularly important for setting the development agenda. Their leadership tends to be inclusive and affect all community and household members with specific attention to women's and children's welfare and women's livelihood strategies (Quisumbing & Pandolfelli, 2010). Women's leadership in collective action also affects access to communal resources, such as irrigation (Von Braun et al., 1989; Van Koppen, 2002).

## **Impact of Agricultural Productivity Interventions that Emphasize Gender Equality**

Women play an important role in agriculture-based livelihood strategies across the productive sectors. Women also play an important role in subsistence food production, particularly through home gardening, backyard poultry, and collection of wild foods. Evidence to support these assertions is provided for:

- Crop production (Lastarria-Cornhiel, 2006; Allendorf, 2007);
- Livestock (Tangka, et al., 1999; Kassa, et al., 2003);
- Aquaculture and fisheries (Weeratunge & Snyder, 2009; Consultative Group on International Agricultural Research (CGIAR), 2012; Ichien, Egna, & Williams, 2012);
- Agro-forestry and forestry (Acharya & Gentle, 2006; FAO, 2013b); and
- Harvesting wild products (Hagenimana et al., 2001; Thomas-Slayter & Sodikoff, 2001; Acharya & Gentle, 2006).

An important benefit of agricultural production interventions that emphasize gender equality is the tendency for women to direct income that they generate from increased sale of agricultural products toward health and nutrition. There is also evidence that women's participation in agricultural production is more likely than men's to take into account synergies with other productive sectors, as well as links between productivity improvement and poverty, hunger, food security, sustainability, and resilience (Thomas-Slayter & Sodikoff, 2001; IFPRI, 2007; Nelson & Stathers, 2009; Weeratunge & Snyder, 2009; World Bank, FAO, & IFAD, 2009a; FAO, 2013a). In their overview of projects linking agriculture and nutrition to gender, Meinzen-Dick et al. (2012) suggest that interventions should increase the focus on women's income generation as a means to improve health and nutrition, rather than the current tendency to focus on women's subsistence food production.

There is evidence that women's capacities are a key factor in determining the success of a variety of agricultural interventions in achieving positive nutrition outcomes (Meinzen-Dick et al., 2012; Smith et al., 2012; Ruel & Alderman, 2013). Training courses and extension advisory services delivered to women are important (Spring, 1995), as are capacity building programs that build women's leadership skills and open up management opportunities for them (Coppock et al., 2011).

## **Impact of Market Support and Value Chain Commercialization Interventions that Emphasize Gender Equality**

There are multiple ways in which markets, and especially value chain commercialization, can be catalytic instruments for economic growth, poverty and hunger alleviation, food security, resource sustainability, and resilience. Market participation holds the potential to generate greater value from women's work in agricultural production, and to enable women to diversify into more remunerative laboring and entrepreneurial activity farther up the value chain. Women's increased income reduces household poverty by enabling them to purchase items that cannot be self-produced and that the household otherwise could not afford. Providing both men and women with access to livelihood options which are not natural-resource based and to goods and services that are not self-produced can also have

secondary benefits for environmental sustainability in certain settings (Morrison et al., 2007; Coppock et al., 2011; Lewis, 2011; Torero, 2011).

For poor women without access to the resources necessary for smallholder agricultural production (e.g., land, inputs, and capital), rural non-farm production and off-farm paid employment in value chains may be their only means to contribute to their households' livelihoods. In an extensive review of the literature on the relationship between women's empowerment, increased productivity, and poverty reduction, Morrison et al. (2007) found ample evidence to suggest that "greater gender equality in resources such as education and access to employment can reduce the likelihood of a household being poor." Female labor force participation, in particular, has been shown to play a key role in cushioning households from the impact of macroeconomic shocks and keeping households from falling into poverty. In addition, as women earn more income through greater market participation, they may gain increased economic profiles and status in their communities and households, which enables them to direct more resources to food and other necessities (Dolan & Sorby, 2003; AGSF, 2005; Fonjong & Athanasia, 2007; Kaaria et al., 2008; World Bank, FAO, & IFAD, 2009a; FAO, IFAD, & ILO, 2010; Duflo, 2011; Doss et al., 2011; KIT et al., 2012). KIT et al. (2012) cite examples of commercialization interventions reporting that women's capacities to alleviate poverty and assure food security in their households were related to their increased general agency.

### **Evidence Gaps**

There is strong evidence that women's empowerment is often linked to increased access to and control of assets, which can in turn make important contributions toward reduction of poverty and hunger. However, studies that measure the extent of these contributions are not available. Also, no study has attempted to compare the contributions of interventions that promote women's asset-based empowerment with those of other intervention types.

It is not yet determined whether programs that empower women in general are more efficient in reducing poverty and hunger than empowerment programs combined with productivity and/or nutrition and commercialization. Van Koppen (2002) points to a lack of adequate conceptualization and methodological tools that could provide the insights that policy makers and change agents need on this issue.

Household income data need to be disaggregated by sex to determine the extent to which increases in women's income are allocated to hunger alleviation. Allendorf (2007) highlights the need for time series data that would fill this gap.

## **IV. BROADER QUESTIONS FOR THE THEME**

Lack of sex-disaggregated data in general, and within the household in particular, is a constraint that limits understanding of the factors affecting women's empowerment and the intervention strategies best suited to amelioration. Issues for which lack of adequate data is particularly critical include:

- **Assessment of Tolerance Levels for Change.** The tolerance for expansion of women's domains of independent and joint control and associated benefits needs to be carefully ascertained and "path dependencies" (the limitations on current decisions created by past decisions) need to be fully researched (Ngo & Wahhaj, 2012). Some authors hypothesize that change should only challenge the balance of bargaining power within a society's current tolerance level. This could involve changes within women's independent



domains of control, or perhaps an incremental stretching of those domains (Tangka et al., 1999). To test this hypothesis, more research needs to be undertaken to understand how to identify domains and their scope for change within various intervention contexts.

- **Access to Land.** Comparative studies are needed on the successes and failures of adopters and non-adopters of improved technologies, based on land ownership versus land access, and on soil fertility and land characteristics (sloped versus flat, distance from dwellings, presence of rocks or stumps, etc.) of women's lands in comparison to men's (SANREM-CRSP, 2012; Rattan et al., 2013). More data are needed on gender differences in land ownership and soil quality. Data should be disaggregated at the plot, not household, level. Gender comparisons of land types, soil fertility, and concomitant yields would help value women's land assets and evaluate output on women's land before and after interventions (Peterman et al., 2010).
- **Marital and Life Cycle Considerations.** Data are needed that relate women's assets and agricultural productivity to their marital and life-cycle adjustments, e.g., changing plots due to marriage and migrating to a husband's homestead; effect of divorce and widowhood on access to land and productive inputs; ability to seek off-farm work or engage in food-for-work programs during pregnancy, lactation, and child care duties; mobility restrictions during menstruation; and so forth.
- **Feminization of Agriculture.** More data are needed on the effects on agricultural productivity and nutrition when men leave agricultural work to seek wage employment in general and especially in times of shocks and disasters. This leaves women to take over smallholder subsistence and commercial production, often without transfer of capital, land tenure, or market networks.
- **Intra-Household Distributions of Endowments.** Data on variables at the intra-household level, such as the distribution of assets and domain of control and the balance of bargaining power over the distribution of assets and income, is generally lacking. Smith et al. (2012) show that rigorous evaluation of intra-household variables can be undertaken, even without the randomization and control groups required by experimental methods.
- **Women's Entry into Medium- and Large-Scale Agro-Industries.** Data are needed on the impact of interventions to promote entry of women into the realm of medium- to large-scale agro-processing and agribusiness (bank loans, opening up of supply channels, formation of business networks, etc.).
- **Quantitative and Comparative Evidence on Scalability.** Morrison et al. (2007) call for further microeconomic and macroeconomic research on the relationship among women's equality, poverty, and growth. There is, however, a persistent lack of the sex-disaggregated data needed for such research (FAO, 2013a).

In addition to the identified gaps in data for the key questions of interest to Feed the Future, there are a number of other important research areas pertinent to gender programming that need further investigation.

1. More work is needed to disentangle measurement for women's empowerment and for women's bargaining power. Doss (2011) notes that measures used for women's empowerment and for women's bargaining power are often empirically the same. Some of the measures of empowerment are actually measures of whether women act as though they are empowered, as well as their beliefs and perceptions about women's rights and roles. Few studies focus on identifying the role of women's bargaining power in women's empowerment, and of those that do, even fewer are rigorous enough to meet the standards of the economics profession. Those that are sufficiently rigorous are difficult to use for policy formation and evaluation (Doss, 2011). The hope is that the use of the WEAI will remedy this gap in both Feed the Future countries and other countries. It is expected that wealth asset data using the GAG method will contribute and expand to more countries.
2. More needs to be known about the factors that affect women's participation in political processes at both national and local levels and how gendered interventions can foster participation. In particular, research is needed on the extent to which projects that target poorer women build leadership skills that they can transfer up to higher political levels.
3. Reports on progress of the world's women, such as those from the World Bank (2012), World Economic Forum (2012), UN Women (2013), and other similar publications, as well as from various databases that present aggregated data at the country level, do not highlight progress in women's empowerment in specific locales or for specific sectors or population groups. Disaggregated data and valuation results that report on the success of development interventions for specific aspects of women's empowerment need to be incorporated in global progress reports as they become available.
4. The process of designing interventions to empower women as it is defined here, in terms of women's bargaining power, is still in its early stages of conceptual development. Results are so far available from only a few scattered pilot studies, and these have proven to be ambiguous (Duflo, 2011). In general, evaluation literature does not distinguish between interventions that emphasize gender equality and those that focus on women's empowerment. Aggregated evaluation results for interventions that target women are often negative, and the few individual reports of positive outcomes are hidden. Future evaluation designs need to address the following question explicitly: *How can aggregated data on women's constraints that produce mainly negative rankings be reconciled with intra-household data that show empowerment success from targeted interventions, given the vast discrepancies in scale and coverage?*
5. The analyses and uses of the WEAI and the Gender Asset Gaps in a range of countries need to be made more explicit as these measurement methods become incorporated in baseline and longitudinal studies of project interventions. Specifically: *How do the use of indices such as the WEAI and the Gender Asset Gaps protocols and measurements relate to the outcomes of Feed the Future interventions, especially in (1) nutrition and food security, and (2) gendered agricultural and value chain interventions?*
6. USAID guidelines for interventions state that projects should be gender sensitive and aim to include women as 50 percent of the beneficiaries. As noted in Section II above, this should be called parity between men and women. If constraints limit achievement of such

parity, these should be explained in the project documentation, preferably with suggestions of ways to alleviate the constraints.

7. The 50 percent target also applies to scientists from both host and home countries, extension agents, and professors and students in degree programs. Thus, agricultural training projects may be expected to reach men and women stakeholders equally at all levels – farmers, extension agents, local and national government officials, researchers, and university faculty. Although most training programs aim for parity, labeled as equality, the actual numbers and percentages of women often fall below parity, with the extent of the shortfall varying for the different stakeholder categories. Moreover, even when parity is achieved, it is not clear whether women are empowered by being beneficiaries because equality and empowerment are beyond the scope of non-gendered interventions and therefore not evaluated.
8. In gendered interventions to date, most of the clients, customers, and farmer participants have tended to be women, so parity and equality in relation to the total reference population group were irrelevant. Whether these interventions empowered their beneficiaries is not clear. The literature mostly mentions constraints to full achievement of empowerment, e.g., (1) women's limited power in many domains (household, community); (2) the lack of strategies that are bold enough to overcome women's limited power; and (3) the limited scope and funding of many gendered interventions. More rigorous examination of the following questions would help to address this gap in the literature: *How do projects and interventions that emphasize gender empowerment compare with those that aim for parity and what are the relative percentages of the beneficiaries and adopters in terms of the client groups? Can interventions that aim for parity influence the intra-household distribution of assets and domain control for independent and joint control and benefits in terms of agricultural production and food security and nutrition?*

## V. REFERENCES CITED

- AGSF. (2005). Gender impacts of small-farm commercialization on household resource management and livelihoods. AGSF Working Document. Rome: FAO.
- Acharya, K.P. & Gentle, P. (2006). Improving the effectiveness of collective action: Sharing experiences from community forestry in Nepal. CGIAR Program on Collective Action and Property Rights (CAPRI) Working Paper No. 54. Washington, DC: CGIAR.
- Alkire, S., Meinzen-Dick, R., Peterman, A., Quisumbing, A., Seymour, G., & Vaz, A. (2012). The women's empowerment in agriculture index. IFPRI Discussion Paper 1240 & Oxford Poverty and Human Development Initiative (OPHI) Working Paper 58. Washington, DC and Oxford, UK: IFPRI and OPHI.
- Allendorf, K. (2007). Do women's land rights promote empowerment and child health in Nepal? *World Development*, 35(11), 1975-1988.
- AWARD. (2013). Innovative program supporting African women agricultural scientists expands to francophone Africa. Retrieved from [http://www.farafrica.org/media/uploads/File/news/award\\_francophone\\_pilot\\_program\\_announcement\\_april\\_22\\_2013](http://www.farafrica.org/media/uploads/File/news/award_francophone_pilot_program_announcement_april_22_2013)
- Ayalew, W., WoldeGebriel, Z., & Kassa, H. (1999). Reducing vitamin A deficiency in Ethiopia: Linkages with a women-focused dairy goat farming project. Research Report Series 4, 1-30. Washington, DC: ICRW.

- Beaman, L. A., Chattopadhyay, R., Duflo, E., Pande, R., & Topalova, P. (2008). Powerful women: does exposure reduce bias? NBER Working Paper 14198. Cambridge, MA: National Bureau of Economic Research (NBER).
- Behrman, J., Karelina, Z., Peterman, A., Roy, S., & Goh, A. (2012). A toolkit on collecting gender and assets data in qualitative and quantitative program evaluations. Gender, Agriculture, & Assets Project (GAAP). Washington, DC: IFPRI & International Livestock Research Institute (ILRI). Retrieved from <http://www.icrw.org/where-we-work/measuring-property-rights-gender-land-and-asset-survey>
- Bernasek, A. (2011). Banking on social change: Grameen Bank lending to women. *International Journal of Politics, Culture and Society*, 16(3). Retrieved from <http://interhealth.org.au/attachments/article/242/Banking%20on%20Social%20Change%20-%20Grameen%20Bank%20Model.pdf>
- Bezner-Kerr, R. (2005). Food security in northern Malawi: Gender, kinship relations and entitlements in historical context. *Journal of Southern African Studies*, 31(1), 53-75.
- Bezner-Kerr, R., Berti, P., & Shumba, L. (2010). Effects of a participatory agriculture and nutrition education project on child growth in northern Malawi. *Public Health Nutrition*, 2010(14), 1466-1472.
- Bhagowalia, P., Menon, P., Quisumbing, A., & Soundararajan, V. (2012). What dimensions of women's empowerment matter most for child nutrition? Evidence using nationally representative data from Bangladesh. IFPRI Discussion Paper 1192. Washington, DC: IFPRI.
- Bhattamishra, R. & Barrett, C. (2010). Community-based risk management arrangements: A review. *World Development*, 38(7), 923-932.
- Bolwig, S. (2012). Poverty and gender effects of smallholder organic contract farming in Uganda. IFPRI Uganda Strategy Support Program Working Paper 8. Washington, DC: IFPRI.
- Boughton, D., Mather, D., Barrett, C.B., Benfica, R., Abdula, D., Tschirley, D., & Cunguara, B. (2007). Market participation by rural households in a low-income country: An asset-based approach applied to Mozambique. *Faith and Economics*, 50(1), 64-101.
- Bruce, J.W. & Swallow, K.A. (2013). A missing dimension: How can governments organize themselves to achieve responsible land governance? Paper prepared for the World Bank Conference on Land and Poverty, Washington, DC, April 8-11, 2013.
- Bushamuka, V.N., de Pee, S., Talukder, A., Kiess, L., Panagides, D., Taher, A., & Bloem, M. (2005). Impact of a homestead gardening program on household food security and empowerment of women in Bangladesh. *Food & Nutrition Bulletin*, 26(1), 17-25.
- Chambers, R. & Conway, G.R. (1992). Sustainable rural livelihoods: Practical concepts for the 21st century. Discussion Paper 296. Brighton, UK: Institute of Development Studies (IDS).
- CGIAR. (2012). A Gender Transformative Approach to Research in Development in Aquatic Agricultural Systems. Gender Strategy Brief, AAS-2012-03a. Penang, Malaysia: CGIAR Research Program on Aquatic Agricultural Systems.
- Clisby, S. (2005). Gender mainstreaming or just more male-streaming? *Gender & Development*, 13(2), 23-35.
- Coppock, D.L., Desta, S., Tezera, S., & Gebru, G. (2011). Capacity building helps pastoral women transform impoverished communities in Ethiopia. *Science*, 334(6061), 1394-1398.

- Crawford, B., Herrera, M.D., Hernandez, N., Rivas Leclair, C., Jiddawi, N., Masumbuko, S. & Haws, M. (2010). Small scale fisheries management: Lessons from cockle harvesters in Nicaragua and Tanzania. *Coastal Management, Special Issue: Sustainable Coastal Communities and Ecosystems*, 38(3), 195-215.
- Datta, R. (2003). From development to empowerment: The self-employed women's association in India. *International Journal of Politics, Culture, and Society*, 16(3), 351-368.
- Dolan, C. & Sorby, K.. (2003). Gender and employment in high-value agriculture industries. *Agriculture and Rural Development Working Paper 7*. Washington, DC: World Bank.
- Domenech, L. & Ringler, C. (2013). The impact of irrigation on nutrition, health and gender: A review paper with insights for Africa South of the Sahara. IFPRI Discussion Paper 01259. Washington, DC: IFPRI. Retrieved from <http://www.ifpri.org/sites/default/files/publications/ifpridp01259.pdf>
- Doss, C. (2001). Designing agricultural technology for African women farmers: Lessons from 25 years of experience. *World Development*, 29(12), 2075-2092.
- Doss, C. (2011). Intrahousehold bargaining and resource allocation in developing countries. *World Development Report 2012: Gender equality and development background paper*. Washington, DC: World Bank. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/9145/WDR2012-0021.pdf?sequence=1>
- Doss, C. & Morris, M.L. (2001). How does gender affect the adoption of agricultural innovations? The case of improved maize technology in Ghana. *Agricultural Economics*, 25(1), 27-39.
- Doss, C., Deere, C.D., Oduro, A., & Swaminathan, H. (2011). The gender asset and wealth gaps: Evidence from Ecuador, Ghana, and Karnataka, India. Bangalore: Indian Institute of Management (IIM). Retrieved from <http://genderassetgap.iimb.ernet.in>
- Doss, C., Deere, C.D., Oduro, A., & Swaminathan, H. (2013a). Collecting sex-disaggregated asset data. The Gender Asset Gap (GAG) Project, Policy Brief Series 3. Bangalore: IIM.
- Doss, C., Deere, C.D., Oduro, A., & Swaminathan, H. (2013b). Calculating the gender asset and wealth gaps. The Gender Asset Gap (GAG) Project, Policy Brief Series 4. Bangalore: IIM.
- Doss, C., Deere, C.D., Oduro, A., & Swaminathan, H. (2013c). Strengthening women's property rights. The Gender Asset Gap (GAG) Project, Policy Brief Series 5. Bangalore: IIM.
- Duflo, E. (2003). Grandmothers and granddaughters: Old age pension and intra-household allocation in South Africa. *World Bank Economic Review*, 17(1), 1-25.
- Duflo, E. (2011). Women's empowerment and economic development. NBER Working Paper 17702. Cambridge, MA: NBER.
- Duflo, E. & Udry, C. (2004). Intrahousehold resource allocation in Cote d'Ivoire: Social norms, separate accounts and consumption choices. NBER Working Paper 10498, Cambridge, MA: NBER. Retrieved from [http://www.econ.yale.edu/~cru2/pdf/ivoire\\_RES\\_comp.pdf](http://www.econ.yale.edu/~cru2/pdf/ivoire_RES_comp.pdf)
- Dyal-Chand, R. (2007). Human worth as collateral. *Rutgers Law Journal*, 793.
- FAO. (2011). Women in agriculture: Closing the gender gap for development. *The State of Food and Agriculture 2010-2011*. Rome: FAO.
- FAO. (2013a). Food systems for better nutrition. *The State of Food and Agriculture 2013*. Rome: FAO.

- FAO. (2013b). Forests, food security and gender: Linkages, disparities and priorities for action. International Conference on Forests for Food Security and Nutrition, 13-15 May, 2013. Background Paper. Rome: FAO. Retrieved from <http://www.fao.org/forestry/37071-07fcc88f7f1162db37cfea44e99b9f1c4.pdf>
- FAO, IFAD & ILO. (2010). Agricultural value chain development: Threat or opportunity for women's employment? Gender and Rural Employment Policy Brief 4. Rome: FAO. Retrieved from <http://www.fao.org/docrep/013/i2008e/i2008e04.pdf>
- Farnworth, C., Sundel, M.F., Nzioki, A., Shivutse, V., & Davis, M. (2013). Transforming gender relations in agriculture in Sub-Saharan Africa. Stockholm: Swedish International Agricultural Network Initiative.
- Feldstein, H. & Poats, S. (Eds.). (1989a). Working together: Gender analysis in agriculture. Volume 1: Case Studies. West Hartford, CT: Kumarian Press.
- Feldstein, H. & Poats, S. (Eds.). (1989b). Working together: Gender analysis in agriculture. Volume 2: Teaching Notes. West Hartford, CT: Kumarian Press.
- Fonjong, L. N. & Athanasia, M. F. (2007). The fortunes and misfortunes of women rice producers in Ndop, Cameroon and the implications for gender roles. *Journal of International Women's Studies*, 8(4), 133-147.
- Gale, C., Collett, K., & Freccero, P. (2013). Delivering extension services through effective and inclusive women's groups: The case of SEWA in India. City and Guilds Centre for Skills Development.
- Gillespie, S., Harris, J., & Kadiyala, S. (2012). The agriculture-nutrition disconnect in India: What do we know? IFPRI Discussion Paper 01187. Washington, DC: IFPRI.
- Goldstein, M., & Udry, C. (2008). The profits of power: Land rights and agricultural investment in Ghana. *Journal of Political Economy*, 116(6), 981-1022.
- Golla, A.M., Malhotra, A., Nanda, P., & Mehra, R. (2011). Understanding and measuring women's economic empowerment: Definition, framework and indicators. Washington, DC: ICRW. Retrieved from <http://www.icrw.org/publications/understanding-and-measuring-womens-economic-empowerment>
- Grameen Bank. (2013). Grameeninfo, August 6, 2013. Retrieved from: [http://www.grameeninfo.org/index.php?option=com\\_content&task=view&id=27&Itemid=176](http://www.grameeninfo.org/index.php?option=com_content&task=view&id=27&Itemid=176)
- Hagenimana, V., Low, J., Anyango, M., Kurz, K., Gichuki, S.T., & Kabira, J. (2001). Enhancing vitamin A intake in young children in western Kenya: Orange-fleshed sweet potatoes and women farmers can serve as key entry points. *Food and Nutrition Bulletin*, 22, 370-387. Retrieved from <http://archive.unu.edu/unupress/food/fnb22-4.pdf>
- Hallman, K., Lewis, D., & Begum, S. (2003). An integrated economic and social analysis to assess the impact of vegetable and fishpond technologies on poverty in rural Bangladesh. IFPRI/Environment and Production Technology Division (EPTD) Discussion Paper 112. Washington, DC: IFPRI. Retrieved from <http://www.fao.org/docs/eims/upload/166326/Hallman,Lewis,Begum.pdf>
- Hill, R. V., & Vigneri, M. (2010). Mainstreaming gender sensitivity in cash crop market supply chains. Background paper prepared for The State of Food and Agriculture 2010-2011. Rome: FAO.
- Hillenbrand, E. (2010). Transforming gender in homestead food production. *Gender & Development*, 18(3), 411-425.

- Hird-Younger, M. & Simpson, B. (2013). Women volunteers: An extension approach for female farmers. Modernizing extension and advisory services (MEAS) Case Study 2. East Lansing, MI: Michigan State University. Retrieved from <http://agrilinks.org/library/meas-case-study-2-women-extension-volunteers-ghana>
- Iannotti, L., Cunningham, K., & Ruel, M. (2009). Improving diet quality and micronutrient nutrition: Homestead food production in Bangladesh. Washington, DC: IFPRI.
- Ichien, S., Egna, H. & Williams, M. (eds.). (2012). Proceedings for the International Institute of Fisheries, Economics and Trade (IIFET) special session on markets and value chains for small aquaculture & fisheries enterprises with a focus on gender. AquaFish CRSP. Corvallis, OR: Oregon State University.
- IFPRI. (2007). IFPRI's strategy toward food and nutrition security. Washington, DC: IFPRI.
- Jacobs, K., Namy, S., Kes, A., Bob, U., & Moodley, V. (2011). Gender, land and asset survey South Africa. Gender differences in asset rights in Kwa-Zulu-Natal, South Africa. Retrieved from <http://www.icrw.org/publications/gender-land-and-asset-survey-south-africa>
- Kaaria, S., Njuki, J., Abenakyo, A., Delve, R., & Sanginga, P. (2008). Assessment of the enabling rural innovation (ERI) approach: Case studies from Malawi and Uganda. *Natural Resources Forum*, 32(1), 53–63.
- Kassa, H., Ayalew, W., Habtegabriel, Z., & Gebremekel, T. (2003). Enhancing the role of livestock production in improving nutritional status of farming families: Lessons from a dairy goat development project in Eastern Ethiopia. *Livestock Research for Rural Development*. 15(6). Retrieved from <http://www.lrrd.org/lrrd15/6/kass156.htm>
- Kes, A., Jacobs, K., & Namy, S. (2011). Gender, land and asset survey Uganda: Gender differences in asset rights in Central Uganda. Washington, DC: ICRW. Retrieved from <http://www.icrw.org/publications/gender-land-and-asset-survey-uganda>
- King, E. & Mason, A. D. (2001). Engendering development through gender equality in rights, resources, and voice. Policy Research Report, Washington, DC: World Bank.
- KIT, Agri-ProFocus & IIRR. (2012). Challenging chains to change: Gender equity in agricultural value chain development. Amsterdam: Royal Tropical Institute, KIT Publishers.
- Lastarria-Cornhiel, S. (2006). Feminization of agriculture: Trends and driving forces. Background paper for the World Development Report 2008, v.I. Santiago, Chile: Rimisp-Latin American Center for Rural Development. Retrieved from [http://siteresources.worldbank.org/INTWDR2008/Resources/2795087-1191427986785/LastarriaCornhiel\\_FeminizationOfAgri.pdf](http://siteresources.worldbank.org/INTWDR2008/Resources/2795087-1191427986785/LastarriaCornhiel_FeminizationOfAgri.pdf)
- Lastarria-Cornhiel, S., Barahona, Z., & Orti, L. (2008). The women of Isoso: Livelihoods, governance and natural resources in the Gran Chaco, Bolivia. Brooklyn, NY: Wildlife Conservation Society and Madison, WI: Land Tenure Center, University of Wisconsin. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/PNADN754.pdf](http://pdf.usaid.gov/pdf_docs/PNADN754.pdf)
- Leroy, J.L., Ruel, M., Verhofstadt, E. & Olney, D. (2008). The micronutrient impact of multisectoral programs focusing on nutrition: Examples from conditional cash transfer, microcredit with education, and agricultural programs. Paper presented at the Micronutrient Forum, Innocenti Meeting, Florence, Italy, 22-25 September, 2008 and published by the Innocenti Review, 5 November 2008. Retrieved from [http://www.micronutrientforum.org/innocenti/Leroy-et-al-MNF-Indirect-Selected-Review\\_FINAL.PDF](http://www.micronutrientforum.org/innocenti/Leroy-et-al-MNF-Indirect-Selected-Review_FINAL.PDF)
- Malhotra, A. & Shuler, S. (2005). Women's empowerment as a variable in international development. Pp. 71-88 in Narayan, D., Ed., *Measuring empowerment: Cross-disciplinary perspectives*. Washington, DC: World Bank.

- Malhotra, A., Shuler, S. & Boender, C. (2002). Measuring women's empowerment as a variable in development. Background paper prepared for World Bank Workshop on Poverty and Gender. Washington, DC: World Bank.
- Manfre, C. & Nordehn, C., (Cultural Practice LLC). (2013). Exploring the promise of information and communication technologies (ICTs) for women farmers in Kenya. MEAS Case Study 4. East Lansing, MI: Michigan State University. Retrieved from [http://www.academia.edu/4224369/Exploring\\_the\\_Promise\\_of\\_Information\\_and\\_Communication\\_Technologies\\_for\\_Women\\_Farmers\\_in\\_Ke\\_nya](http://www.academia.edu/4224369/Exploring_the_Promise_of_Information_and_Communication_Technologies_for_Women_Farmers_in_Ke_nya)
- Markelova, H., Meinzen-Dick, R., Hellin, J., & Dohrn, S. (2009). Collective action for smallholder market access. *Food Policy*, 34(1), 1-7.
- McDade, B. & Spring, A. (2005). The new generation of African entrepreneurs: Networking to change the climate for business and private-sector led development. *Entrepreneurship & Regional Development*, 17(1), 17-42.
- Meinzen-Dick, R., Behrman, J., Menon, P., & Quisumbing, A. (2012). Gender: A key dimension linking agricultural programs to improved nutrition and health. Pp. 135-144 in S. Fan & R. Pandya-Lorch (Eds.), *Reshaping agriculture for nutrition and health: An IFPRI 2020 book*. Washington, DC: IFPRI.
- Meinzen-Dick, R. & Di Gregorio, M. (Eds.). (2004). Collective action and property rights for sustainable development. IFPRI 2020 Vision Focus Brief 11. Retrieved from <http://www.ifpri.org/sites/default/files/publications/focus11.pdf>
- Meinzen-Dick, R. & Quisumbing, A., (2013). Closing the gender gap. Washington, DC: IFPRI.
- Moore, K.M., Cisse, S., & Toure, A. (2005). Building social infrastructure for sustainable development. Pp. 89-100 in K.M. Moore (Ed.). *Conflict, social capital and managing natural resources: A West African case study*. Wallingford, UK: CABI Publishing.
- Morrison, A., Raju, D. & Sinha, N. (2007). Gender equality, poverty and economic growth. Washington, DC: World Bank.
- Mulokozi, G., Mselle, L., Mgoba, C., Mugyabuso, J.K.L., & Ndossi, G.D. (2000). Improved solar drying of vitamin A-rich foods by women's groups in the Singida District of Tanzania (N. 5). Washington, DC: ICRW.
- Nelson, V. & Stathers, T. (2009). Resilience, power, culture, and climate: A case study from semi-arid Tanzania, and new research directions. *Gender & Development*, 17(1), 81-94. Retrieved from <http://enva320spring2011.wiki.usfca.edu/file/view/Resilience,+Power,+Culture+in+Tanzania.pdf/203234868/Resilience,%20Power,%20Culture%20in%20Tanzania.pdf>
- Ngo, T.M-P. & Wahhaj, Z. (2012). Microfinance and gender empowerment. *Journal of Development Economics*, 99(1), 1-12.
- Opare, S. (2005). Engaging women in community decision-making processes in rural Ghana: Problems and prospects. *Development in Practice*, 15(1), 90-99.
- Paolisso, M. J., Hallman, K., Haddad, L., & Regmi, S. (2002). Does cash crop adoption detract from child care provision? Evidence from rural Nepal. *Economic Development and Cultural Change*, 50(2), 313-338.
- Peterman, A., Behrman, J., & Quisumbing, A. (2010). A review of empirical evidence on gender differences in nonland agricultural inputs, technology, and services in developing countries. Washington, DC: IFPRI.



- Pitt, M., Khandker, S., Chowdhury, O., & Millimet, D. (2003). Credit programs for the poor and the health status of children in rural Bangladesh. *International Economic Review*, 44, 87-118.
- Quisumbing, A.R. & Maluccio, J. (2000). Intrahousehold allocation and gender relations: New empirical evidence from four developing countries. Food Consumption and Nutrition Division (FCND) discussion paper No.84. Washington, DC: IFPRI,
- Quisumbing, A.R., & Meinzen-Dick, R. (2001). Empowering women to achieve food security: Overview. IFPRI 2020 Vision Focus Briefs, Focus 6, Policy Brief 1 of 12, February 2004. IFPRI/CAPRI. Retrieved from <http://www.ifpri.org/sites/default/files/publications/focus11.pdf>
- Quisumbing, A.R., & Pandolfelli, L. (2010). Promising approaches to address the needs of poor female farmers: Resources, constraints, and interventions. *World Development*, 38(4), 581-592.
- Ragasa, C., Berhane, G., Tadesse, F., & Seyoum, A. (2012). Gender differences in access to extension services and agricultural productivity. Washington, DC: IFPRI.
- Rahman, A. (1999). *Women and microcredit in rural Bangladesh*. Boulder, CO.: Westview Press.
- Rattan, L., Spring, A., & Welsh, R. (2013). Report of the external evaluation team of Feed the Future Innovation Lab for Collaborative Research on Sustainable Agriculture and Natural Resource Management (SANREM), Phase IV (2009-2014). Washington, DC: USAID Bureau for Food Security.
- Ruel, M. & Alderman, H. (2013). Nutrition-sensitive interventions and programmes: How can they help to accelerate progress in improving maternal and child nutrition? *The Lancet*. Retrieved from [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)60843-0/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60843-0/abstract)
- SANREM-CRSP. (2012). *SANREM 2012 Semiannual Report*. Blacksburg, VA. SANREM-CRSP.
- Smith, L.C., Khan, F., Frankenberger, T., & Wadud, A. (2012) Admissible evidence in the court of development evaluation? The impact of CARE's SHOUHARDO project on child stunting in Bangladesh. *World Development*. Retrieved from <http://dx.doi.org/10.1016/j.worlddev.2012.06.018>
- Smith, L. C. & Haddad, L. J. (2000). Explaining child malnutrition in developing countries: A cross-country analysis (Research Report 111). Washington, DC: IFPRI.
- Spring, A. (1986). Reaching female farmers through male extension workers. In *Training for agriculture and rural development* 38. 11-20. Rome: FAO, UN Economic, Social and Cultural Organization (UNESCO) and ILO.
- Spring, A. (1995). *Agricultural development and gender issues in Malawi*. Lanham, MD: University Press of America.
- Spring, A. (1996). *Gender and environment: Some methods for extension specialists*. Rome: FAO.
- Spring, A. (2001). Agricultural commercialization: Its positive effects on African women farmers. *Development Economics and Policy*. 23, 13-36.
- Spring, A. (2009a). African women in the entrepreneurial landscape: Reconsidering the formal and informal sectors. *Journal of African Business*. 10(1), 11-30.
- Spring, A. (2009b). Empowering women in the African entrepreneurial landscape. In M. Ndulo, ed. *Power, gender and social change in Africa*, 293-326. New Castle upon Tyne: Cambridge Scholars Publishing.
- Spring, A. (Ed.). (2000). *Women farmers and commercial ventures: Increasing food security in developing countries*. Boulder, CO: Lynne Rienner Publishers.

- Swaminathan, H., Lahoti, R., & Suchitra, J.Y. (2012). Women's property, mobility, and decision-making: Evidence from rural Karnataka, India. IFPRI Discussion Paper 01188. Washington, DC: IFPRI.
- Talukder, A., Sapkota, G., Shrestha, S., de Pee, S., & Bloem, M. W. (2006). Homestead food production program in Central and Far-western Nepal increases food and nutrition security: An overview of program achievements. In R. Gautam, B., Sthapit & P. Shrestha, (Eds.). Home gardens in Nepal: Proceedings of a national workshop, Pokhara, Nepal, 6-7 August 2004 27-34. Local Initiatives for Biodiversity, Research and Development (LI-BIRD), Bioversity International and Swiss Agency for Development and Cooperation (SDC). Retrieved from [http://www.bioversityinternational.org/uploads/tx\\_news/Home\\_Gardens\\_in\\_Nepal\\_1166.pdf](http://www.bioversityinternational.org/uploads/tx_news/Home_Gardens_in_Nepal_1166.pdf)
- Tangka, F., Ouma, E. A., & Staal, S.J. (1999). Women and the sustainable development of market-oriented dairying: Evidence from the highlands of East Africa. Paper presented at the 1999 International Sustainable Development Research Conference, University of Leeds, UK, March 25-26, 1999.
- Tesoriero, F. (2006). Strengthening communities through women's self-help groups in South India. *Community Development Journal*, 41(3), 321-333.
- Thomas, D. (1990). Intrahousehold resource allocation: An inferential approach. *Journal of Human Resources*, 25, 635-664.
- Thomas-Slayter, B. & Sodikoff, G. (2001). Sustainable investments: Women's contributions to natural resource management projects in Africa. *Development in Practice*, 11(1), 2001.
- Torero, M. (2011). A framework for linking small farmers to markets. Paper presented at the IFAD Conference on New Directions for Smallholder Agriculture, Rome, Italy, 24-25 January, 2011.
- UN Women. (2013). Annual Report, 2012-2013. New York: UN Women, Communications and Advocacy Section.
- United Nations. (2012). The Millennium Development Goals Report 2012. New York.
- USAID. (2011). Feed the Future Learning Agenda. Retrieved from <http://feedthefuture.gov/resource/feed-future-learning-agenda>
- USAID. (2012). Gender equality and female empowerment policy. Retrieved from [http://pdf.usaid.gov/pdf\\_docs/pdact200/pdf](http://pdf.usaid.gov/pdf_docs/pdact200/pdf)
- USAID. (2013a). Overview of USAID's gender equality and female empowerment policy. Retrieved from <http://www.usaid.gov/documents/1870/fact-sheet-gender-equality-female-empowerment-policy>
- USAID (2013b). Key terms in gender and development, gender equality and women's empowerment. Retrieved from [http://usaid.gov/our\\_work/crosscutting\\_programs/wid/gender/gender\\_analysis\\_terms.html](http://usaid.gov/our_work/crosscutting_programs/wid/gender/gender_analysis_terms.html)
- USAID. (2013c). Women's empowerment in agriculture index. Washington, D.C.: USAID, IFPRI & OPHI.
- Van Koppen, B. (2002). A gender performance indicator for irrigation: Concepts, tools and applications. International Water Management Institute (IWMI) Research Report 59. Retrieved from [http://www.iwmi.cgiar.org/Publications/IWMI\\_Research\\_Reports/PDF/pub059/Report59.pdf](http://www.iwmi.cgiar.org/Publications/IWMI_Research_Reports/PDF/pub059/Report59.pdf)
- Von Braun, J., Puetz, D., & Webb, P. (1989). Irrigation technology and commercialization of rice in The Gambia: Effects on income and nutrition. IFPRI Research Report 75. Washington, DC: IFPRI.
- Webb, P. & Block, S. (2004). Nutrition information and formal schooling as inputs to child nutrition. *Economic Development and Cultural Change*, 52(4).

Weeratunge, N. & Snyder, K. (2009). Gleaner, fisher, trader, processor: Understanding gendered employment in the fisheries and aquaculture sector in Malaysia and Malawi. Paper presented by the World Fish Center at the FAO/IFAD/ILO Workshop on Gaps, Trends and Current Research in Gender Dimensions of Agricultural and Rural Employment: Differentiated Pathways Out of Poverty, Rome, 31 March-2 April, 2009.

World Bank, FAO, & IFAD. (2009a). Gender and agriculture sourcebook. Washington, DC: World Bank.

World Bank, FAO, & IFAD. (2009b). Gender and agricultural markets. Gender in agriculture sourcebook, Module 5. Washington, DC: World Bank.

World Bank. (2011a). Gender & climate change: 3 things you should know. Retrieved from <http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/244362-1232059926563/5747581-1239131985528/5999762-1321989469080/Gender-Climate-Change.pdf>

World Bank. (2011b). Gender equality and development. World Development Report 2012. Washington, DC: World Bank.

World Economic Forum. (2012). Global competitiveness and gender gap report. Retrieved from <http://www.weforum.org/reports/global-gender-gap-report-2012>