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Measuring Empowerment across the Value Chain

The Evolution of the Project-Level Women's Empowerment Index for Market Inclusion (pro-WEAI+MI)

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ABSTRACT

Many development agencies design and implement interventions that aim to reach, benefit, and empower rural women across the value chain in activities ranging from production, to processing, to marketing. Determining whether and how such interventions empower women, as well as the constraints faced by different value chain actors, requires quantitative and qualitative tools. We describe how we adapted the project-level Women's Empowerment in Agricultural Index (pro-WEAI), a mixed-methods tool for studying empowerment in development projects, to include aspects of agency relevant for multiple types of value chain actors. The resulting pro-WEAI for market inclusion (pro-WEAI+MI) includes quantitative and qualitative instruments developed over the course of four studies. Studies in the Philippines (2017), Bangladesh (2017), and Malawi (2019) were intended to diagnose areas of disempowerment to inform programming, whereas the Benin (2019) study was an impact assessment of an agricultural training program. The pro-WEAI+MI includes all indicators included in pro-WEAI, plus a dashboard of complementary indicators and recommended qualitative instruments. These tools investigate the empowerment of women in different value chains and nodes and identify barriers to market access and inclusion that may restrict empowerment for different value chain actors. Our findings highlight three lessons. First, the sampling strategy needs to be designed to capture the key actors in a value chain. Second, the market inclusion indicators cannot stand alone; they must be interpreted alongside the core pro-WEAI indicators. Third, not all market inclusion indicators will be relevant for all value chains and contexts. Users should research the experiences of women and men in the target value chains in the context of the program to select priority market inclusion indicators.

Keywords: Women's empowerment; value chains; agriculture; gender; mixed methods

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ACRONYMS

A4NH	Agriculture for Nutrition and Health
ATVET4W	Agricultural Technical Vocational Education and Training for Women
AVC	Agricultural value chain
AUDA	African Union Development Agency
BMGF	Bill & Melinda Gates Foundation
CDT	Compact Development Team
CGIAR	CGIAR, formerly Consultative Group on International Agricultural Research (full name no longer in use)
CIRFoSS	International Center for Research and Training in Social Sciences
DATA	Data Analysis and Technical Assistance Limited
GAAP	Gender, Agriculture, and Assets Project
GAAP2	Gender, Agriculture, and Assets Project Phase 2
GBV	Gender-based violence
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i>
FGD	Focus group discussion
IPV	Intimate partner violence
MCC	Millennium Challenge Corporation
MI	Market inclusion
NEPAD	New Partnership for Africa's Development
NGO	Non-governmental organization
NGSE	New General Self-efficacy Scale
pro-WEAI	project-level Women's Empowerment in Agriculture Index
pro-WEAI+MI	project-level Women's Empowerment in Agriculture Index for Market Inclusion
RAI	Relative Autonomy Index
SSI	Semi-structured interview
USAID	United States Agency for International Development
VC	Value chain
WASH	Water, sanitation, and hygiene
WEAI	Women's Empowerment in Agriculture Index

1. INTRODUCTION

Although women play important roles in agricultural production, processing, and marketing worldwide, they are often less likely to derive benefits from participation in agricultural markets compared to men due to gender-based barriers (Malapit et al., 2019; Manzanera-Ruiz et al., 2016; Njuki et al., 2022). Despite many efforts to promote women's market inclusion, evidence on the resulting empowerment outcomes is surprisingly limited.

One barrier to understanding whether and how market-related interventions empower women is the lack of both qualitative research tools and quantitative metrics designed specifically for examining the empowerment of women and men who are engaged in agricultural markets. Despite the growth of women's empowerment metrics inspired by Kabeer's (1999) foundational work, none have specifically focused on women's empowerment in market inclusion. The widely used Women's Empowerment in Agriculture Index (WEAI) (Alkire et al., 2013) and the subsequent project-level WEAI (pro-WEAI) (Malapit et al., 2019) and its associated qualitative protocols have advanced our understanding of both women's and men's empowerment and gender equality in the agricultural sector. While the WEAI was designed for monitoring empowerment at the population level, pro-WEAI was designed to measure the impact of agricultural development interventions on women's and men's empowerment.

However, these tools focus primarily on measuring empowerment for those involved in agricultural production, and do not capture other nodes of the agricultural value chains (VC) such as marketing, processing, and value addition, either as entrepreneur or hired labor. Gender analysis in agricultural development and value chain studies also consider only actors downstream from producers, and typically neglect upstream actors such as input suppliers and biophysical scientists involved in the development of new crop varieties, livestock breeds, or fish strains (KIT, Agri-ProFocus and IIRR, 2012; Masamha, Thebe, and Uzokwe, 2018). At the same time, many studies increasingly show the crucial role of women in these upstream and further downstream nodes of the VCs, as well as the potential of these nodes for women's entrepreneurship and livelihoods (Elias et al., 2022; Gumucio et al., 2021).

Despite a growing interest in VC development and entrepreneurship as potential avenues for women's empowerment (Quisumbing et al., 2023), few tools were available to assess empowerment in these market-oriented settings. A recent scoping review (Twyman & Ambler, 2021) identified 19 research tools and methods that assess some aspects of gender in AVCs. Only two, however, focus on women's empowerment: earlier work developing the pro-WEAI for Market Inclusion (pro-WEAI+MI)¹ and a how-to guide on "Measuring Women's Economic Empowerment in Private Sector Development" (Markel, 2014). We developed the pro-WEAI+MI in response to the growing demand for a flexible tool to measure empowerment that captures the variety of ways in which women and men engage in AVCs, recognizing that such involvement matters both for their empowerment and the improvement of VC functioning. Pro-WEAI+MI evolved from earlier versions of the WEAI through an iterative mixed-methods process drawing sequentially on work in the Philippines (2017), Bangladesh (2017), Benin (2019), and Malawi (2019). The country studies differed both in their contexts and their study objectives. The quantitative and qualitative tools evolved as we learned from cognitive interviewing², in-depth interviews and focus groups with a broad range of VC actors, and surveys of households and individuals active in different nodes of different VCs.³ The resulting pro-WEAI+MI consists of all indicators necessary for calculating pro-WEAI, plus a dashboard of optional complementary indicators related to market inclusion that are appropriate to different geographic and project contexts. The instrument can be used for entrepreneurs and employees as well as agricultural producers. It also includes flexible discussion guides for focus groups and in-depth interviews with a variety of VC actors.

This paper focuses on the methodological development and the evolution of pro-WEAI+MI and its associated qualitative protocols. It draws on previous and ongoing studies on the Philippines (Malapit et al., 2020), Bangladesh (Ahmed et al., 2018; Raghunathan et al., 2021), Benin (Eissler et al., 2021), and

¹ In earlier iterations, the same metric was referred to as WEAI for Value Chains or WEAI4VC.

² Cognitive interviewing is a qualitative approach for identifying sources of error in how respondents respond to survey items (Willis, 2004).

³ The country cases focused on the downstream actors from producers and not the upstream actors of the VCs. Gender differences in the composition of some "upstream" actors (e.g., seed producers, input suppliers, agrodealers, and extension service providers) are documented in the literature (see Gumucio et al., 2021; van Campenhout 2022) but are not studied here.

Malawi (Ragasa et al., 2021), as well as synthesis work on empowerment in food systems (Quisumbing, et al., 2021). The previous studies presented the findings from pro-WEAI+MI, but, thus far, no paper has reflected on the overall process of developing the instrument, particularly the iterative process across country studies and between qualitative and quantitative approaches in refining the instrument.

In the following sections of this paper, we elaborate how we developed the pro-WEAI+MI. We discuss the evolution of the methodology in two parts: the early version of the tools implemented in the Philippines and Bangladesh and the more refined version of the tools implemented in Benin and Malawi. Philippines and Bangladesh were implemented alongside each other, as were Benin and Malawi, and this staggered timing offered opportunities for the iterative adaptation of the tools. We first provide a brief description of the country contexts in the next section, followed by a discussion of the methodology for the Asia studies and the Africa studies focusing on the adaptations implemented for each study and the key lessons learned in each phase. Next, we present the dashboard of market inclusion indicators we developed along with key findings. We conclude with a summary of emerging insights from the development of pro-WEAI+MI and reflect on the lessons that can be applied to using pro-WEAI+MI in future work.

2. BUILDING THE PROTOTYPE: STUDIES IN THE PHILIPPINES AND BANGLADESH

2.1 Country contexts

Pro-WEAI+MI evolved from instruments piloted in four very different countries and for studies addressing different questions (Table 1). The two Asian countries, the Philippines and Bangladesh, differ markedly from one another in their gender norms. While Filipino culture has been observed to be relatively egalitarian and exhibits greater gender equality in ownership and inheritance rights compared to other neighboring countries, gendered stereotypes persist and affect women's and men's participation and roles in VCs (Malapit et al., 2020). In contrast, while women in rural Bangladesh play key roles in the agriculture sector, most women farmers work on land owned in the name of their father or husband due to unequal land inheritance practices that favor men (Kieran et al., 2015; Raghunathan et al., 2021). Cultural norms also limit women's mobility in Bangladesh (Kabeer, 1999), in a way that is not common in the Philippines.

In 2017, women comprised 16 percent of farm holders and operators (Philippine Statistics Authority, 2017a) and 23 percent of the agricultural workforce in the Philippines, and around 17 percent of employed women worked in agriculture (Philippine Statistics Authority, 2017b). Both women and men are engaged in different stages of AVCs, although women and men tended to specialize in specific agricultural activities, similar to the rest of Southeast Asia (Akter et al., 2017). Men dominate as workers in AVCs and earn higher wages on average compared with women workers (Briones, 2019; Valientes, 2015).

In Bangladesh, participation of women in agriculture has increased over time: between 1999/2000 and 2005/06, while there has been an absolute decrease in male labor of about 6 percent, the number of employed females in agriculture increased from 3.76 to 7.71 million—that is, by more than 100 percent. Consequently, the proportion of women in the agricultural labor force has increased from less than 20 percent to 33.6 percent of the total (BBS, Labour Force Survey, 1999/00, 2002/03 and 2005/06, in Birner et al., 2010). While the overall female labor force participation rate has been growing steadily over the

last three decades, driven largely by the export-oriented garment sector (Ragunathan et al., 2021), as of 2013, the majority of all working women in Bangladesh were still employed in agriculture and related sectors (Rahman & Islam, 2013).

Table 1. Study countries, value chains, and sampling overview

Country	Study objectives	Focus value chains/ Activities	Survey sample size	Survey respondents	Data collection dates
Philippines	Assess empowerment potential of target commodities	Abaca, Coconut, Seaweed, Swine	1,624 households in 4 provinces (Sorsogon, Cebu, Bohol, Leyte)	Primary male and female decision-makers in each household	<i>Survey:</i> March-July 2017 <i>Qualitative:</i> September-December 2017
Bangladesh	Assess empowerment among different VC actors	Not specific to a commodity; but sampled by actor (Agricultural production, agricultural entrepreneurship, agricultural wage employment)	1,198 households in 5 districts in SE Bangladesh	Primary male and female decision-makers in each household	<i>Survey:</i> May-July 2017 <i>Qualitative:</i> September-October 2017
Benin	Assess empowerment impact of training intervention	Rice, Soy, Compost, Poultry	879 households in 2 departments (Atlantique and Donga)	Program beneficiary (woman) and her husband (or another male relative if she was unmarried)	<i>Survey:</i> August-September 2019 <i>Qualitative:</i> November 2019-February 2020
Malawi	Assess empowerment impact of training intervention (pilot stage) and collect baseline on empowerment for the training program	Vegetables	544 households in 5 districts (Lilongwe, Nkhotakota, Chitipa, Blantyre, Chiradzulu)	Program beneficiaries: husband and wife couple	<i>Survey:</i> September-October 2019 <i>Qualitative:</i> November 2019-February 2020

Source: Authors.

2.2 Study objectives

The Philippines study was intended to inform the selection and design of interventions included in the Millennium Challenge Corporation's (MCC) compact investments (Malapit et al., 2018). Our goal was to identify opportunities for reducing gender inequalities between women and men, mitigate any unintended negative consequences of potential interventions, and ultimately maximize the impact of MCC's investments on the empowerment of women farmers and entrepreneurs. At that time, pro-WEAI was in its early stages of development and, like the original WEAI, primarily focused on production.

MCC's compact investments, however, were intended to be socially inclusive and reach not only farmers but also entrepreneurs and workers in the agribusiness sector in selected value chains. Thus, there was a demand for a modified version of WEAI that considered the full scope of engagement in small-scale agribusiness activities.

The Philippines study focused on the abaca, coconut, seaweed (and its byproduct carrageenan), and swine value chains, which were identified by a government-appointed Compact Development Team (CDT) as promising commodities with high growth potential. The study aimed to investigate in each of these four VCs: i) empowerment of women and men, ii) gender-based constraints faced by women and men, iii) factors associated with disempowerment of women and men, and iv) whether different VCs and nodes thereof were more empowering than others (Malapit et al., 2020).

Concurrent with the planning of pro-WEAI+MI work in the Philippines, USAID expressed interest in implementing the same tool in Bangladesh, where WEAI data had been previously collected in the Bangladesh Integrated Household Survey (Ahmed et al., 2018). These data show that in 2011/12, only 27.4 percent of women were empowered in the Feed the Future Zone of Influence, and Bangladeshi women were the least empowered among the initial 13 countries in Feed the Future that collected baseline WEAI data (Malapit et al., 2014). These baseline findings drew the attention of the Government of Bangladesh, which, with the assistance of USAID, then implemented programs to reduce the empowerment gap. In 2015, the percent of empowered women increased 13.9 percentage points to 41.2 percent. At baseline, 40.2 percent of women had gender parity with the primary male in their household; the rate increased to 50.7 percent in 2015 (Ahmed et al., 2015). These positive changes prompted questions about potential spillover effects on women's empowerment in agriculture-based rural enterprises as well as the nonfarm sector.

While both the Philippines and Bangladesh studies aimed to use the pro-WEAI+MI results as a diagnostic to inform future programming, a key difference was the focus of analysis. In the Philippines, MCC and the CDT wanted to understand empowerment in different commodity value chains (abaca, coconut, seaweed, swine), whereas in Bangladesh, USAID wanted to understand empowerment of

different VC actors – producers, entrepreneurs, and wage workers. The differences in study focus shaped the sampling frame and structure of the pro-WEAI+MI survey instrument.

2.3 Sampling

Reflecting differences in study objectives (Table 1), the quantitative survey design varied across the country studies.⁴ In the Philippines, survey data were collected in March – August 2017 using a purposive sampling design focusing on top-producing provinces and villages and ensuring sufficient respondents for each VC and node (Malapit, et al., 2020). Information on these four VCs was collected in six provinces in the Bicol and Visayas regions of the Philippines. Following the recommended sample size for WEAI pilot studies, that is, a minimum of 400 households per sub-group or treatment arm, in the Philippines study we aimed for 200 households per province-commodity group, totaling 400 households per commodity and 1600 households for the entire survey. It would have been desirable to have 400 households or actors at each node of the value chain, but this was infeasible for both budgetary and practical purposes, because of the smaller number of actors at higher nodes of the value chain. We addressed this in the qualitative work (see below). The final sample was 1,624 households (2,811 individuals). The sample represented different nodes in the VCs (production, processing, and trading or marketing) as well as households with an adult woman and man (dual-adult households) and households with only an adult woman (no adult man, woman-only households). Only households whose primary livelihood was from one of the targets VCs were included in the survey.

The Bangladesh sampling design reflected its objective to study the relative empowerment of different VC actors. The survey was implemented among 1,200 households in 10 *upazilas* (sub-districts) within the USAID's Feed the Future zone of influence in southeastern Bangladesh (Ahmed et al., 2018). The *upazilas* were purposively selected to include diversified agricultural areas with rice, vegetables, pulses, maize, cut flowers, livestock and poultry, fisheries (producer areas) and availability of agriculture-

⁴ Further detail on data collection for all four studies is available in the country specific citations that we have mentioned. Importantly, all four studies underwent ethical review through the IFPRI Institutional Review Board and country IRBs, as applicable.

based enterprises (entrepreneur areas, mostly in urban centers). We intended to sample 400 households from three types of economic activity: (1) agricultural production, (2) agricultural entrepreneurship, and (3) agricultural-sector wage employment. Although, we later learned that the distinctions among these types of households were not clear cut, based on activities in the previous 12 months, a household was classified as a (1) producer if any member had participated in crop farming/fishing/livestock raising; (2) entrepreneur if any member owns/operated an agriculture-driven business for commercial purposes; and (3) wage worker if any member worked for someone outside the household (e.g., in crop/livestock/fish production, agri-business, or non-agri-business) in exchange for money, food, or goods in the agriculture sector. The wage worker group (those who depended mostly on wage earnings) was split between the rural (producer area) *upazilas* and urban (entrepreneur area) *upazilas*, which included 200 agriculture-sector wage-worker households and 200 wage-worker households working for entrepreneur households. The final sample included 1,198 households and 2,268 individuals. While this approach enabled us to implement the survey efficiently within our budgetary parameters, we acknowledge that this classification oversimplifies the livelihoods of rural Bangladeshi households, whose members typically engage in a diverse portfolio of activities, dictated by both risk diversification and seasonality of agricultural cycles.

2.4 Questionnaire development

We used the draft pro-WEAI questionnaire that was concurrently being tested by the Gender, Agriculture, and Assets Project, Phase 2 (GAAP2; Malapit et al., 2019) as the starting point for the initial pro-WEAI+MI questionnaire. The draft pro-WEAI questionnaire reflected changes to the original five-domain, 10 indicator WEAI (Alkire et al., 2013), based on what the GAAP2 projects felt were important for measuring project impact on women's empowerment. For example, coverage was expanded to agricultural and livestock-related processing and new topics were included, such as freedom of movement and attitudes about intimate partner violence (IPV). To minimize survey costs, we only included the

required questions of the draft pro-WEAI questionnaire, which at the time excluded self-efficacy.⁵ Additionally, the freedom of movement module was not collected in the Philippines because limited mobility was not considered a constraint for women in this context.

To broaden the scope of pro-WEAI beyond agricultural production, we used two approaches. First, we expanded the existing activity categories included in pro-WEAI into sub-categories relevant to specific VCs or VC actors. Second, we developed new questions covering wage work, access to information, and other aspects of empowerment that are important to capture for the VC. Table 2. **Evolution of the pro-WEAI+MI questionnaires** presents an overview of these adaptations.

⁵ The required pro-WEAI indicators have since been updated. Please refer to the WEAI Resource Center for the latest developments: <https://weai.ifpri.info/versions/pro-weai/>

Table 2. Evolution of the pro-WEAI+MI questionnaires

Module	Philippines (2017)	Bangladesh (2017)	Benin (2019)	Malawi (2019)
<i>Pro-WEAI modules</i>				
Role in household decision-making around livelihood activities	Activities adapted to collect data separately on abaca farming, coconut farming, swine raising or processing, and seaweed farming	Implemented as three separate modules for producer, entrepreneur and wage earner households. Each module adapted activities – for example, production for producers; food processing, storage and packaging for entrepreneurs; and a combination of activities for wage earners	Activities adapted to collect data separately on focus VC commodities	Activities adapted to collect data separately on focus VC commodities
Access to productive capital	✓	✓	✓	✓
Access to financial services	✓	✓	✓	✓
Time allocation	Activities adapted to collect data separately on abaca farming, coconut farming, swine raising or processing, and seaweed farming	Activities adapted to separate production and entrepreneurship/business	Activities adapted to separate out training or meetings related to agriculture or other livelihoods, including ATVET4W training	Activities adapted to separate out training or meetings related to agriculture or other livelihoods, including ATVET4W training
Group membership	✓	✓	✓	✓
Freedom of movement	Not included	✓	Expanded version (undergoing revision)	Expanded version (undergoing revision)
Intrahousehold relationships	✓	✓	✓	✓
Autonomy in decision-making	Stories were adapted for and implemented depending on whether the respondent was a producer, livestock-keeper, entrepreneur or wage worker	Stories were adapted for and implemented depending on whether the household focused on production, entrepreneurship or wage earning	Only included questions on autonomy in decision-making on income	Only included questions on autonomy in decision-making on income
New general self-efficacy scale	Not included	Not included	✓	✓
Attitudes about violence against women	✓	✓	✓	✓

Module	Philippines (2017)	Bangladesh (2017)	Benin (2019)	Malawi (2019)
<i>Modules to address market inclusion</i>				
Access to information and agriculture/ livestock/ fisheries extension	Questions related to meeting with agricultural officers or technologists	Question on access to information in the <i>Role in household decision-making around livelihood activities</i> module	Questions on ever receiving advice/information, source of information, decisions on acting on information, and awareness of and participation in training/services in community included in the <i>Role in household decision-making around livelihood activities</i> module	Questions on ever receiving advice/information, source of information, decisions on acting on information, and awareness of and participation in training/services in community included in the <i>Role in household decision-making around livelihood activities</i> module
Wage income and conditions of work	Questions related to sector and type of work, satisfaction with contract, hours/weeks worked in last 12 months, benefits received, and work in multiple jobs	Type of work (permanent/temporary/contract) for each family member	Not included	Not included
Purdah information	Not included	✓	Not included	Not included
Messaging	Not included	Questions related to ever hearing or discussion issues related to spousal communication, verbal and physical abuse	Not included	Not included
Wife's assets brought to marriage	Not included	✓	Not included	Not included
Time-use agency	Not included	Not included	✓	✓
Entrepreneurial mindset	Not included	Not included	✓	✓
Access to reliable sanitation	Not included	Not included	✓	✓
Agency over menstrual hygiene management	Not included	Not included	✓	✓
Marriage and fertility agency	Not included	Not included	✓	✓
Feels safe from sexual harassment in the work environment	Not included	Not included	✓	✓

Source: Authors. Checkmarks indicate that the topic was included.

Note: Questionnaires are available at: <https://weai.ifpri.info/weai-resource-center/guides-and-instruments/>

Adaptations to pro-WEAI questions

We made several adaptations to the survey module on decision-making around production and income, which is used to calculate the *input in production decisions* and *control over use of income* pro-WEAI indicators. The pro-WEAI questionnaire includes questions about decision making and control over income for general categories of economic activities, such as (among others) staple grain farming, horticultural/high-value crop farming, and large livestock raising. In the Philippines, we expanded all the activity categories to include “farming, processing, trading and marketing” and added new categories for abaca farming, coconut farming, swine raising or processing, and seaweed farming. In Bangladesh, where the focus was on the type of value chain actor, we modified this module according to respondents’ specific roles as producer, entrepreneur, or wage worker. Producers used the original pro-WEAI questionnaire along with the original activity categories. The entrepreneur-version of this module used modified activity categories including food processing, storage, packaging, transportation, and retail sale of VC commodities, while the wage-worker version included both production and entrepreneurship activities. Apart from the revised activity categories, a new question on ownership of the enterprise was included for the entrepreneur version, while new questions on type of work and weekly hours worked were included for the wage-worker version.

The draft pro-WEAI questionnaire included four sets of vignettes to construct the *autonomy in decision-making* indicator. These include types of crops to grow, livestock raising, taking crops/livestock to market, and how to use income generated from agricultural and non-agricultural activities. In both Philippines and Bangladesh, the vignettes were adapted depending on the respondent’s livelihood activities. The Philippines used the pro-WEAI vignettes for producers and livestock-keepers (type of crops/animals to grow/raise, taking crops/livestock to market), and developed new vignettes for entrepreneurs (type of products to make/sell, location of business) and wage workers (type of work, working conditions). The vignettes on the use of income were collected from all respondents regardless of livelihood. In Bangladesh the full set of vignettes from pro-WEAI was used, along with additional

vignettes for entrepreneurs (types of products to make/sell, location of enterprise, size of enterprise, use of income) and for wage workers (whether to work, conditions of work, use of income).

Adaptations were also made to the 24-hour recall-based, time diary used to calculate the *work balance* pro-WEAI indicator. The pro-WEAI time diary typically collects information on time use related to 24 distinct activities, encompassing both paid and unpaid work as well as leisure and self-care. In the Philippines and Bangladesh, activity categories were added, respectively, for abaca farming, coconut farming, swine raising or processing, and seaweed farming, and work as a producer, entrepreneur, or wage worker.

Other topics covered

A more detailed module on wage income and conditions of work was also included in the Philippines' individual questionnaire, while for Bangladesh, participation in livelihoods and type of work for each family member was collected in the household questionnaire. Additional topics of particular interest to local stakeholders were also included, such as access to information and extension in the Philippines, and *purdah*⁶, assets brought to marriage, exposure to non-governmental organization (NGO) messaging, and food insecurity in Bangladesh.

Cognitive interviewing. In previous work, we have used cognitive interviewing to test new survey tools, particularly for complex and sensitive topics such as women's empowerment (Hannan et al., 2019; Malapit et al., 2017). Cognitive interviewing is a qualitative approach to identifying sources of error in how respondents interpret and formulate responses to survey questions, from which the results can be used to revise the questionnaire to elicit more accurate answers (Willis, 2004). Due to budget constraints, we were unable to conduct cognitive interviewing in the Philippines, so field teams conducted extensive pretests prior to the survey. Two researchers on the team who are native speakers of the Philippine languages provided extensive guidance for translation and interpretation. Although none of the

⁶ *Purdah* is a set of religious and social practices around women's seclusion that generally include the physical segregation of women and men and the covering of women's bodies.

questions were revised following the pretests, one key recommendation was to split up the autonomy vignettes, which helped to break up the monotony of the interview and reduce respondent fatigue.

Because of the missed opportunity to do cognitive interviews in the Philippines, we ensured that this was budgeted in the Bangladesh study. The cognitive interviews in Bangladesh were conducted with male and female respondents in 26 households (nine producer, nine entrepreneur, and eight wage worker households). We prioritized the adapted modules for testing, specifically, the household decision-making and autonomy modules, along with the pro-WEAI modules that included revised questions not previously included in the WEAI, including access to financial services, group membership, intrahousehold relationships, and attitudes about IPV against women. Because respondents found it difficult to answer questions related to livelihoods in which they themselves do not participate, we improved the screening questions and skip patterns so that respondents were directed to the specific questions and vignettes that were applicable to their own situation. While there were initial concerns from stakeholders regarding the questions related to attitudes about IPV, most respondents did not report any difficulties or high levels of sensitivities with these questions.

2.5 Qualitative methods

Although the development of the original WEAI drew on prior qualitative research studies and semi-structured interviews (SSIs) with a small sample of empowered and disempowered women to triangulate survey findings (Alkire et al., 2013), qualitative methods were more fully integrated in later adaptations of the index. The first phase of the Gender, Agriculture, and Assets Project (GAAP) incorporated qualitative methods more fully, using focus group discussions (FGDs) and SSIs in each project, but without common approaches or discussion guides. In developing pro-WEAI, GAAP2 adopted a more structured and deliberate approach. Team members collectively developed a set of protocols (Meinzen-Dick et al., 2019), which were further adapted for the pro-WEAI+MI qualitative studies.⁷ These drew from interview guides and methods for studying the gender dimensions of AVCs (Rubin et

⁷ Available here: <https://weai.ifpri.info/files/2018/04/GAAP2-Qualitative-Protocols-no-comments-.pdf>

al., 2009) as well as the team’s experience in GAAP and topical input from project implementers. Table 3 presents the topics covered by each data collection tool⁸ used for the respective qualitative studies, for the pro-WEAI+MI studies, which reduced the number of tool types, while increasing the types of interviewees. Earlier versions of the qualitative protocols under GAAP2 included some components that were dropped as a result of limited time and budgets (see Table 4).

Table 3. Qualitative data collection tools, their purpose, and topics covered for pro-WEAI+MI

Data collection tool	Use in pro-WEAI+MI
Literature review	To gain understanding of the project area, project goals. its and operations, and relevant statistics or background on previous activities in the area and their gender dimensions. The project document review can also provide data on project communities and/or seasonality calendars.
Semi-structured interviews with individuals or small groups and focus group discussions with producers, market traders, and other entrepreneurs, and wage earners and other stakeholders.	To elicit local understandings of empowerment; understand attitudes toward children’s future occupations; control over time.
Semi-structured interviews with producers, market traders, and other entrepreneurs, and wage earners and other stakeholders	To gain understanding of the operations of target value chains, with attention to decision-making around livelihoods and assets, and gender-related barriers and opportunities for both women and men to engaging with markets; safety and mobility; participation in VC-related groups
Semi-structured key informant interviews with project staff, local government officials, and other relevant stakeholders	To confirm basic contextual information about the projects and communities in which interventions take place, and gain insights about their perspectives on the factors affecting the way the project does (or does not) have impact on women’s empowerment.

Source: Authors.

In addition to the changes reflected in Table 3, expanding the qualitative protocols to include interviews with actors at multiple nodes of the value chain, the interview questions were refined in response to project emphases and country context (Table 4). In Bangladesh, the qualitative study questions emphasized the value chain actor (producers, traders, and entrepreneurs as well as wage earners in these categories) and captured less information about the specifics of the value chains in which they worked. In contrast, the Philippines survey was attentive to both how respondents engaged in the two

⁸ All of the qualitative interviews used semi-structured interview guides. In the written reports about the studies, there is sometime a distinction between interviews that were conducted with key informants, with other (non-key) individuals, or in small groups.

value chains studied—seaweed and coconut— as well as gaining a deep understanding of how these value chains operated and the constraints and opportunities that shaped men’s and women’s roles in them. The Benin and Malawi protocols targeted specific value chains of interest to the project implementers in each country and included questions about participations in trainings and application of information presented in trainings in their agricultural production or related businesses. Not all topics were asked of all respondents across countries, as the questions were tailored to the different respondents’ positions in the value chains (producer, trader, entrepreneur, or wage worker) or outside of it (e.g., project staff, government officials, and other stakeholders).

Table 4. Evolution of topics covered by each data collection tool

Topic	Philippines (2017)	Bangladesh (2017)	Benin (2019)	Malawi (2019)
<i>Pro-WEAI+MI Qualitative Protocols</i>				
Literature review	✓	✓	✓	✓
Community profile	Not included	Used community profile questionnaire	Not included	Not included
	Data collected from literature review and interviews with project staff, governments, and other stakeholders rather than from interviews with men and women community members.			
Local concepts of empowerment	Asked about empowerment with all respondents in SSIs with individuals and small groups. Did not use Focus Group Discussions	Asked about empowerment with all respondents in SSIs with individuals and groups; and in Focus Group Discussions	Asked about empowerment with all respondents in SSIs with individuals and small groups; Did not use Focus Group Discussions	Asked about empowerment with all respondents in SSIs with individuals and small groups; Did not use Focus group Discussions.
Participation/position in value chain(s)	✓	✓	✓	✓ Included producers, processors, traders, and other agri-entrepreneurs
Operation of the value chain	✓	✓	✓	✓
Access to productive resources	✓	✓	✓	✓
Group and association membership	✓	✓	✓	✓ Added questions on benefits from membership and whether single or mixed-sex groups were desirable
Time use	Framed as reporting on activities in a typical day	Framed as reporting on activities in a typical day	Focus was on ability to control own time use (see additional modifications in the “Time use” row below)	Focus was on ability to control own time use (see additional modifications in the “Time use” row below)
Aspirations for children’s education	✓	✓	Not included	Not included

Topic	Philippines (2017)	Bangladesh (2017)	Benin (2019)	Malawi (2019)
Sexual harassment in the workplace/market	Not included	Not included	✓ Perceptions of safety and sexual harassment in their working environments	Framed only in terms of safety when traveling generally and to or from the market; also attitudes about women's entrepreneurship in relationship to mobility and safety
Ease of movement	✓	✓	✓	
<i>Modifications to address specific project interests and market inclusion</i>				
Additions to the qualitative sample compared to previous pro-WEAI protocols	Included both men and women entrepreneurs and interviews with several association leaders in both seaweed and coconut VCs	Included producers, wage workers, processors, traders, and other entrepreneurs	Included producers, wage workers, processors, traders, and other entrepreneurs, as well as individual producers not involved in the ATVET4W trainings ("non-trainees")	Included stakeholders in higher education and training instructors, as well as individual producers not involved in the ATVET4W trainings ("non-trainees")
Experiences with market-oriented training programs	Not included	Not included	Training participants were asked about the relevance of the ATVET4W trainings to their needs; benefits received; challenges in application, and more	Training participants were asked about the relevance of the ATVET4W trainings to their needs; benefits received; challenges in application, and more
Group and association membership	✓ Added questions for association leaders on about men's and women's experiences of membership	✓ Asked about knowledge of project-led group activities	✓ Asked about membership in associations and expected benefits from membership	✓ Added questions on benefits from membership and whether single or mixed-sex groups were desirable

Topic	Philippines (2017)	Bangladesh (2017)	Benin (2019)	Malawi (2019)
Time use	Asked about daily activities	Asked about daily activities	Asked questions to directly explore time use and empowerment, and to seek understanding of views on gaining greater control over own time from both men and women respondents.	Added questions to directly explore time use and empowerment, and to seek understanding of views on gaining greater control over own time
Operation of the value chain; Gender-based constraints and opportunities	✓ Added questions for agri-entrepreneurs and laborers	✓ Added questions for agri-entrepreneurs and laborers	✓ Added agri-entrepreneurs as a focus category; Asked about what value chain activities were harder for men or women	✓ Added agri-entrepreneurs as a focus category, including asking about sex-differences in customer preferences; Asked about what value chain activities were harder for men or women; Added questions for producers (both trainees and non-trainees) on upgrading opportunities and resources needed to expand operations

Source: Authors.

Although the qualitative sample in Bangladesh was much larger than in the Philippines, both drew on the sampling design of the quantitative studies. The qualitative sample aimed to include respondents who had participated in the quantitative surveys and to reflect diversity of occupation, location, gender, and age. Additionally, more interviewees were added in each qualitative study to gain insights from local government officers and other specialists. In a few cases, other substitutions were made to gain coverage of underrepresented categories, such as women entrepreneurs. Additional respondents were chosen if too few survey respondents were found in the chosen field sites, since time and funding limited how many of the quantitative survey sites could be visited. The final sample in both countries included government officials, traders, and larger processors who could provide reliable information about the participation of women and men in various value chains even though they did not conform to the household eligibility criteria for inclusion in the quantitative survey (Table 5).

Table 5. Qualitative sample in Bangladesh and in the Philippines

Actor	Bangladesh			Philippines				Total	
	Men	Women	Subtotal	Seaweed (Bohol and Cebu)		Coconut (Leyte)			Subtotal
				Men	Women	Men	Women		
Producers	14	14	28	4	4	4	4	16	44
Wage workers	16	11	27	--		--		--	24
Traders	9	4	13	4		4		8	32
Processors	--	--	--	4		4		8	8
Agricultural Entrepreneurs ¹	15	14	29						29
Ministry of Agriculture/Fisheries Officer	2	2	4	1		1		2	6
Municipal Gender Officer	--	1	1	1		1		2	3
Association head	--	--	--	2		2		4	4
Total	56	46	102	20		20		40	142

Source: Authors.

Note: In Bangladesh, some community members were interviewed for the community profile described in the previous table, along with government officials.

¹In Bangladesh, the category of entrepreneurs included owners of variety of businesses, such as agro-input shops, shopkeepers, and food processors, including grain mill owners.

In both countries, trainings were conducted with the research assistants who later carried out the SSIs with individuals or small groups and FGDs in the field. The training covered a basic introduction to qualitative research data collection using the protocols developed for the GAAP2 work described above, with particular attention to understanding local concepts of empowerment. In addition, the course in the Philippines (five days) and in Bangladesh (seven days) covered the process for undertaking a gender analysis of AVCs in both locations.

The Bangladesh five-member team had worked together for more than five years on several IFPRI qualitative studies and were comfortable with qualitative interviewing, but less familiar with women's empowerment in AVCs. In contrast, the five member Philippines team had conducted many quantitative surveys and were knowledgeable about AVCs, but not trained in qualitative work. Each team had its strengths, and the results of the studies do not appear to be linked to these initial differences. All the members of both teams were fluent in English and the relevant local languages of Bangla for Bangladesh and Bicolano, Tagalog, and Cebuano for the Philippines.

Interviews were recorded and notes were also taken by hand. In Bangladesh, an outside firm prepared transcripts from the recordings, and the field research team reviewed them for accuracy, prepared codebooks, and entered the data into NVivo™ for thematic analysis. The interviews in the Philippines, were also recorded, but were translated by the field research team who also developed the codebooks and entered the data into Dedoose™ for coding and thematic analysis.

2.6 Key lessons

Sampling

Despite our best efforts, for both the qualitative and quantitative research, locating respondents that participated in higher nodes of the VC was challenging, specifically for larger-scale processors and entrepreneurs, because these VC actors represent a small proportion of the population and tend to be in urban centers. Purposive sampling was useful for getting sufficient samples for each VC subgroup or actor. However, reaching respondents in the higher nodes required conducting the survey in new areas. In the

Philippines, this was not feasible due to budget constraints, so our sample was primarily rural and captured small-scale processors and traders who tended to be co-located with producers. In Bangladesh, the survey was designed to cover both rural areas and urban centers, yet it was still difficult to find enough entrepreneur and wage-worker households. In both countries, we conducted additional qualitative work to cover the types of respondents that were underrepresented in the survey.

In Bangladesh, the classification of households into producer, entrepreneur and wage worker groups did not account for the diversity of rural livelihoods. Most households engage in multiple economic activities over a year, so identifying households that relied exclusively on income from production, entrepreneurship, or wage work was difficult. Wage worker households were particularly difficult to identify because wage employment is usually short-term, seasonal, and intermittent. Women entrepreneurs were also rare, so households in which they were identified in the census were automatically selected. In general, households with more unusual types of enterprise or wage work activities, such as those engaged in the cut flower VC, were also automatically selected. Seasonal activities such as production of *gur* (unrefined brown sugar) are also likely to be missed during the census (Ahmed et al., 2018).

Questionnaire development

Cognitive interviewing was critical for testing new and adapted questions in new contexts, but we were unable to do as much testing as desired in the Asia studies. Dropping some questions that later became required for pro-WEAI limited our ability to construct the pro-WEAI indicators.

Qualitative tools

Results from the qualitative studies in Bangladesh and Philippines illuminated the need to expand the number of qualitative interview questions to understand value chain operations in greater depth, and to ensure that both men and women respondents from each node of the value chain were included. The Philippines work, which focused on specific value chains, enabled us to learn about the barriers and opportunities for both men and women, compared to the value chain actor approach used in Bangladesh.

We also shifted away from FGDs, which are time-consuming and require facilitation and notetaking skills that are hard to find among local consultants. Too often, as people in the group get excited about participating, novice facilitators lose their chance to ask follow-up questions, resulting in confusing responses, and no way to clarify them. We obtained better quality data from individual and small group interviews where the process can be more easily managed.

3. ADAPTING AND REFINING: STUDIES IN BENIN AND MALAWI

3.1 Country contexts

The two African countries, Benin and Malawi, differ markedly from each other in social and cultural contexts, and especially compared to the Asian countries previously studied. Approximately 80% of Benin's population is linked to agriculture, primarily by farming staple crops on small plots of land for home consumption. Despite a legal framework that guarantees the right of women to inherit land, lack of land is a significant barrier for women's involvement in agriculture, and most cultivated land is controlled by men. Women primarily engage in low-technology agricultural processing, which is also limited by access to start up resources, extension, and markets (Goldstein et al., 2016; Kinkingninhoun-Médagbé et al., 2010). Moreover, women have limited influence on household decisions, rarely hold leadership positions in formal agricultural groups, and are excluded from formal agricultural decisions in the home and community (Kinkingninhoun-Médagbé et al., 2010; Miassi et al., 2018).

Malawi is a small, population-dense, land-locked country in Southern Africa, with 85% of the population residing in rural areas (Kilic, Palacios-Lopez, & Goldstein, 2015). Agriculture is not only the backbone of Malawi's economy but also an essential part of its social fabric, with 84% of Malawian households owning and/or cultivating land, most of it devoted to maize, the main staple crop (Kilic Palacios-Lopez, & Goldstein, 2015). Malawi encompasses diverse tenure systems, with some districts mainly matrilineal and others patrilineal. However, while many districts and ethnic groups in Malawi are classified as matrilineal (Berge et al., 2014), agricultural decisions, regardless of tenure systems, are predominantly a male domain (Andersson Djurfeldt et al., 2018). For certain crops, gender differences are pronounced. Women's participation in tobacco marketing, for example, is more limited than men's. The membership rules in the tobacco marketing association limit women's participation, and women also face difficulties in traveling to the tobacco auction. As a result, husbands generally receive the proceeds from tobacco sales (Andersson Djurfeldt, 2018). Women are also less likely than men to participate in producers' or industry associations, organizations and committees (IFPRI, 2021b, 2021a).

3.2 Study objectives

Recognizing the value of a tool like pro-WEAI+MI and the lessons learned from the Philippines and Bangladesh, there was interest in using pro-WEAI+MI in connection with the implementation of the Agricultural Technical Vocational Education and Training for Women (ATVET4W) program, implemented by the African Union Development Agency (AUDA-NEPAD) and supported by the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ). ATVET4W aims to increase women's access to, and benefits and empowerment from, both formal and non-formal trainings in six countries: Kenya, Malawi, Ghana, Benin, Burkina Faso, and Togo (GIZ 2016). Of the six ATVET4W countries, Benin and Malawi were selected in consultation with AUDA-NEPAD and GIZ, for refining and further developing pro-WEAI+MI. We prioritized two different contexts, one Anglophone and one Francophone country, with different gender norms and household structures, and where high-quality quantitative and qualitative collaborators were available to conduct data collection.

In Benin, ATVET4W was launched in 2017 and began training women in 2018, focusing on three training areas: 1) capacity building along the poultry, rice, and soybeans value chains; 2) training women in the manufacture, use, and sale of organic compost generated from waste collection; and 3) raising awareness of best practices in sanitation, including good infant and child feeding practices, hygiene and food safety (Table 1). Participants for the short training course were selected from those already involved in the rice, poultry, or soy value chains, with a quota of at least 66% women. Poultry and rice value chain trainings were conducted in cooperation with existing experienced agribusinesses in private training centers, while the soybean and compost trainings were organized by selected NGOs in their training centers.

Training modules were developed to impart best practices for the four target value chains (poultry, rice, soybeans, compost) and good hygiene in the value chain and in households. The module on soybean covered processing soybean into different products, such as soy milk, cheese, etc. The poultry module addressed practices to improve the quality of local chickens. It did not however address marketing. The rice module aimed to improve the processing of paddy rice into parboiled rice for the

local market. The compost module provided key information on degradable and non-degradable materials, and on processing compost from these materials (Eissler et al., 2021).

In Malawi, ATVET4W was launched in October 2018 and initially focused on the vegetable value chain, and later aquaculture, mango, pineapple (Table 1). The study aimed to (1) document the early implementation of the non-formal ATVET4W in Malawi (pilot phase), (2) assess the value chain and empowerment outcomes of the program's pilot phase (as of January 2020), and (3) provide a baseline for the current phase of the ATVET4W program.

In contrast with the ATVET4W program in Benin, ATVET4W in Malawi adopted a household approach that encouraged household members to share responsibilities and joint decisionmaking for farm and home-related management decisions (Farnworth et al., 2018; IFAD, 2014). The basic philosophy of ATVET4W is that “it takes two” to improve outcomes. In practice, this meant that the program targeted both spouses for developing agricultural and entrepreneurial skills while simultaneously addressing power relations within the household to reduce gender gaps. The program also worked with existing agricultural training centers or community colleges to build their capacity to provide the trainings. Overall, the trainings encouraged farmers to increase their incomes by diversifying their production, shifting from maize or tobacco to higher value commodities, such as aquaculture, mango, pineapple, and vegetables.

3.3 Sampling

The Benin and Malawi surveys were designed to assess impacts of ATVET4W.⁹ Unlike in the Philippines and Bangladesh, where the respondents were the primary male and female decisionmakers in the household, in Benin and Malawi, the respondents were the program beneficiaries (or equivalent nonbeneficiaries in a comparison group). In Benin, the second respondent was typically the spouse, and occasionally another male household member if she was unmarried. Since the Malawi program trained couples, both members of the beneficiary couple were the respondents. The small number of trainees in

⁹ In Benin, data collection was intended to assess the impact of the first wave of program implementation and as a baseline for the second wave. In Malawi, it was intended to serve as a baseline. However, a shift in funding priorities, along with the COVID-19 pandemic meant that the program in these two countries did not continue.

either country program did not permit the analysis by separate commodity stratum, so beneficiaries were aggregated for analysis.

In Benin, the survey was conducted from August to September 2019 in Donga, Collines, and Atakora departments in the north and Atlantique and Ouémé departments in the south. The sample included program trainees (from program records), as well as a comparison group. The comparison group was identified from a list of potential future beneficiaries and augmented with other individuals active in the target value chains to reach the target sample size. The total sample included 879 households (242 beneficiary, and 637 non-beneficiary), for a total of 879 women and 589 men.

For the Malawi study, both women and men in the household were targeted and invited to participate in the program, but for practical reasons only one household member could attend the training. Women comprised around 60% of graduates. The sample included households where there was at least one ATVET4W graduate (female or male) as well as households in the comparison group. The survey was conducted from September to October 2019 in five districts across Malawi: Blantyre, Chiradzulu, Chitipa, Lilongwe, and Nkhosvota. The final sample included women and men from 544 households for a total of 542 women and 395 men.

3.4 Questionnaire development

In adapting the questionnaires for Benin and Malawi, we drew on lessons from the studies in the Philippines and Bangladesh, as well as the continued use of core pro-WEAI more broadly. Additionally, a stakeholder inception workshop helped us identify additional areas of importance based on program specifics and cultural relevance. We adapted the existing activity categories in the Philippines questionnaire to suit the target value chains in Benin and Malawi (Table 2. **Evolution of the pro-WEAI+MI questionnaires**). The Benin and Malawi surveys also followed the latest guidance on the pro-WEAI questionnaire, which had changed since the Philippines and Bangladesh surveys. Specifically, the *autonomy in decision-making* indicator required fewer vignettes related to use of income, and the previously optional questions used for calculating the *self-efficacy* indicator were now required. To

facilitate tracking empowerment across the ATVET4W portfolio, we aimed to align the Benin and Malawi questionnaires as closely as possible. The surveys were nearly identical except for program-specific modules.¹⁰

Adaptations to pro-WEAI questions

Similar to the Philippines, in Benin and Malawi, we used the core pro-WEAI questions about decision making and control over income, which we have used previously, for the same activity categories (e.g., staple grain farming, processing, trading and marketing, etc.), but asked separately about a single additional target commodity based on the household’s participation in the intervention (Table 4). The prompts for each activity include production, processing, and trading or marketing. For the time diary used to calculate the *work balance* pro-WEAI indicator, we used the same pro-WEAI activity lists, with the addition of one category for “training or meetings related to agriculture or other livelihoods (includes ATVET4W training)”. To broaden the scope of the time-use module, we also developed questions on time-use agency for the Benin and Malawi projects (Eissler et al., 2022).

Other topics covered

We included additional content as either new modules or as additions to existing modules on topics such as time-use agency, access to information, freedom of movement, and feels safe from sexual harassment in the work environment, access to reliable sanitation in the working environment, agency in menstrual hygiene management, and marriage and fertility agency. These topics were included based on emerging topics in the women’s empowerment literature, country partners’ interest, and findings from the qualitative studies in the Asia studies.

Cognitive interviewing

In Benin and Malawi, we engaged in more extensive cognitive interviewing, motivated by both the large number of new modules, as well as the potentially sensitive (e.g., sexual harassment) or complex

¹⁰ Pro-WEAI+MI questionnaires are available at: <https://weai.ifpri.info/weai-resource-center/guides-and-instruments/>.

(e.g., time-use agency) nature of many of these new modules. Cognitive interviewing was conducted in June (Malawi) and July (Benin) 2019 with sufficient time to revise the survey modules prior to the main quantitative survey. In both countries the samples were purposefully designed to include women and men who were speakers of the common languages where the survey would be conducted. We included both dual-adult households and women-only households, in line with the types of households that would be surveyed for the quantitative study. In Malawi, 22 dual-adult households and seven women-only households were interviewed for a total of 51 respondents (22 men and 29 women) by two women and two men. In Benin, the sample included 29 dual-adult households and 16 women-only households for a total of 74 respondents (29 men and 45 women), who were interviewed by three women and three men. The findings of cognitive interviewing significantly influenced revisions to the final pro-WEAI+MI survey that was administered. These revisions included rewording some items, dropping particularly problematic questions or topics, and, in a few instances, revising response options to reflect respondents' lived experiences more accurately. The cognitive interviewing methods, results, and subsequent revisions are thoroughly described in Myers et al. (in development).

3.4 Qualitative methods

As with the Asia studies, we adapted the qualitative protocols (Table 3) in response to the project and country contexts in Benin and Malawi (Table 4). The qualitative data were collected from ATVET4W program participants and their spouses, non-participants in the ATVET4W program who were active in the respective value chains, program staff, and different VC actors (e.g., input suppliers, credit providers) using SSIs and structured observations. In Benin, key informant interviews were conducted with purposively selected VC actors in the respective value chains of interest, such as input suppliers, extension agents, credit providers, and local traders. In Malawi and Benin, SSIs were conducted with women participants of the ATVET4W program and their husbands, women active in the respective value chains who did not participate in the ATVET4W program, and with ATVET4W trainers. In Benin, primarily women participated in the ATVET4W program, whereas men and women participated in the

program in Malawi. In Malawi, participants were both producers and entrepreneurs (processors or traders). VC actors were asked about their role in their respective value chains, their engagement with men and women in the value chain, their perceptions of the ATVET4W program, and barriers for women's empowerment. Similar questions were asked of program participants, participant spouses, and non-participants of similar profiles adjusted to their specific role related to opportunities and barriers for participation in their respective value chain and the program, perceptions of safety and sexual harassment in their working environments, general perceptions of the program, understandings of empowerment, and barriers for women's empowerment. Interviews with program trainers asked about their role in the program, their selection process, description of the trainings, working with beneficiaries, understandings of empowerment, barriers for women's empowerment, and linkages between the program and women's empowerment. Structured observations were conducted in Benin at different training centers that host ATVET4W trainings, capturing observations regarding the training centers' environment, safety, hygiene, functionality, and structure.

In Benin, a team of four (two men and two women) researchers fluent in French and local languages collected the qualitative data across fourteen communes in northern and southern Benin. In Malawi, a team of three researchers (one man and two women) fluent in English and local languages collected qualitative data across thirteen villages between two Central and Southern districts. The qualitative sample was derived from the larger, complementary quantitative study sampling approach detailed in Heckert et al. (2020) for Benin and Ragasa et al. (2021) for Malawi. Additional details on the qualitative study in Benin are detailed in Eissler et al. (2020) and in Ragasa et al. (2021) for Malawi.

Table 6 presents the total qualitative sample by type of participant for Benin and Malawi qualitative studies.

Table 6. Qualitative Sample in Benin and Malawi

	Benin		Malawi		Total
	North	South	Central	South	
Women participants of ATVET4W	10	10	7	5	32
Husbands of ATVET4W participants	4	3	5	4	16
Non-participant women active in the value chain	3	4	6	6	19
Women entrepreneurs			2	3	5
ATVET4W trainers	2	3	4	4	13
Direct observation	2	3	--	--	5
VC actors					
Local traders	2	2	--	--	4
Input suppliers	1	1	--	--	2
Credit providers		1	--	--	1
Agricultural extension agents	1	1	1	--	3

Source: Authors.

The SSIs and FDGs were audio-recorded, if respondents consented to recording, and simultaneously translated and transcribed into English (Malawi) and French (Benin). Two separate codebooks were developed that included deductive and inductive codes. Data were coded in NVivo and analysed using thematic qualitative analysis.

3.5 Key lessons

Sampling

Unlike the Asian studies, which were intended to inform investments, the African studies were conducted as part of impact assessments; therefore, creating a valid counterfactual was an important objective of sampling design. Because assignment to trainings were not randomized in either country, we used a quasi-experimental design. We mimicked the selection process for ATVET4W training participants to identify future training participants, which then formed the comparison group. To make appropriate comparisons of household members of the selected beneficiaries and controls, we selected the female respondent's husband, if available, or another male decision-maker in the household if he was not available. The previous approach of interviewing the key male and female decision makers used in Bangladesh and the Philippines would not have been appropriate for these studies. Because we selected

the individual trained by the program and her spouse (if available) as respondents in the treatment arm, in the control arm we identified the respondent who was also active in one of the target VCs and that individual's spouse (Heckert et al., 2020; Ragasa et al., 2021).

Questionnaire development

Comparability of indicators, and therefore survey modules, across studies was important so that funders and program implementors could identify the types of programs that worked in different contexts across the broader portfolio of their investments. Thus, we designed the pro-WEAI+MI parts of the questionnaires to be nearly identical in Benin and Malawi, drawing on lessons learned from cognitive interviewing while remaining sensitive to country specificity.

Additionally, these studies afforded the team the opportunity to explore topics that were emerging as meaningful new areas of study in the literature and in conversations with funders and implementors. For example, in the Philippines study, stakeholders raised the importance of capturing gender-based violence (GBV) in the context of landlord/tenant and employer/employee relationships. We therefore expanded the questions on attitudes about violence against women in these scenarios. While the questions worked reasonably well in the Philippines context, it did not fully capture an individual's exposure to sexual harassment in the workplace, a critical constraint faced by women. This realization inspired the new questions on sexual harassment in the Benin and Malawi studies, some of which were on topics that were both sensitive and under-researched in these specific livelihoods and contexts. Cognitive interviewing was an important step in helping us understand what questions worked and what needed to be revised, with some topics being dropped because they were too sensitive. For other topics, such as time-use agency, we were not satisfied with the final result and continued to work on developing these indicators in subsequent work (Eissler et al., 2022; Sinharoy et al., forthcoming in *Feminist Economics*).

Qualitative methods

A key focus in the African studies was eliciting respondents' views on how participation in the market-oriented agricultural trainings affected the quality of their value chain experiences. This narrower

focus, compared to more general questions about value chain activities, helped to elicit more specific responses about both technical assistance and intrahousehold relations.

4. MARKET INCLUSION INDICATORS AND RESULTS

4.1 What is pro-WEAI+MI?

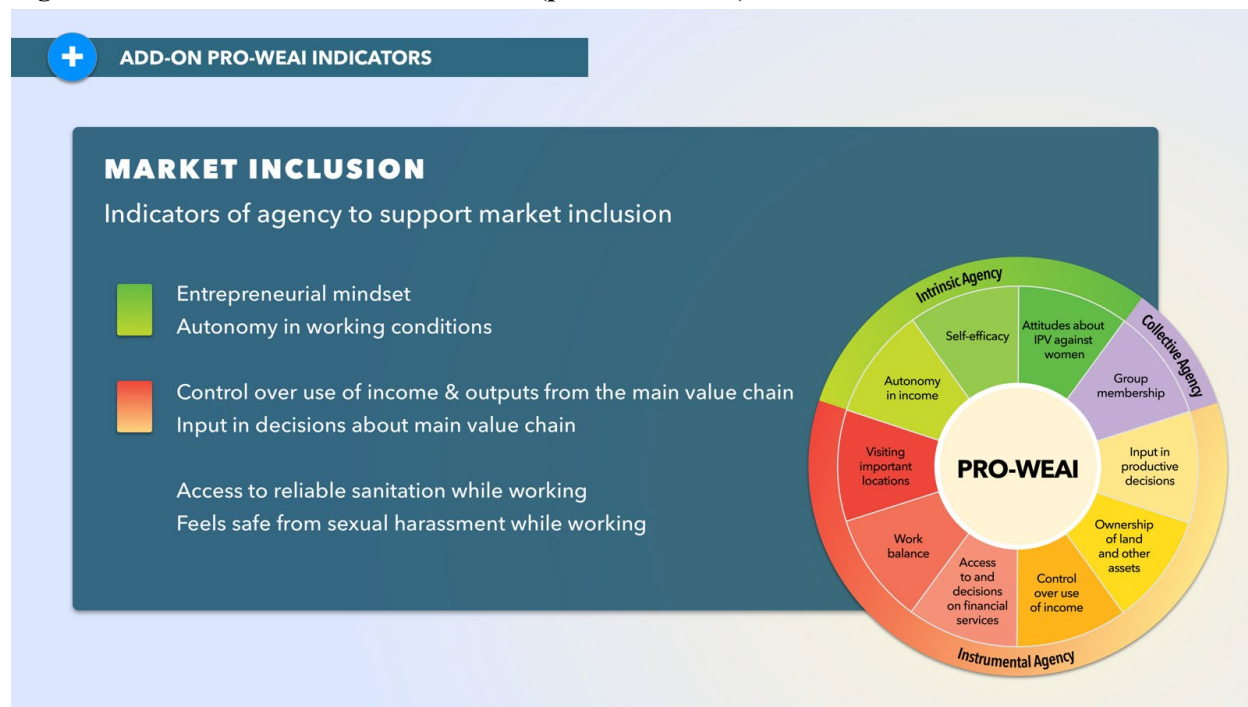
Pro-WEAI+MI consists of all indicators necessary for calculating pro-WEAI, plus a dashboard of optional complementary indicators related to market inclusion that are appropriate to different geographic and project contexts (Figure 1). We recommend pro-WEAI for any type of agricultural development project with empowerment objectives.¹¹ It consists of 10 equally weighted indicators that measure three types of agency: intrinsic agency (power within), instrumental agency (power to), and collective agency (power with) (Table 7) and is sufficiently general to cover a broad range of livelihoods. Pro-WEAI+MI's complementary indicators related to market access and inclusion of different VC actors, as well as other aspects of agency (Table 8), are NOT included when calculating the composite pro-WEAI score. Instead, they are designed to be presented and interpreted alongside pro-WEAI and provide additional information. Because value chains are extremely diverse, even within a given setting, attempting to standardize tools across such a wide variety of landscapes and contexts is not only challenging, but also unnecessary, given that each application would naturally have different areas of focus and questions to answer. This dashboard approach preserves pro-WEAI as a consistent measure of empowerment and enables users to compare results among different types of interventions or across a portfolio of investments. This structure also gives users the flexibility to select the market inclusion (MI) indicators that are most relevant for the particular intervention, value chains, and contexts where the project is situated. Although a dashboard approach could introduce subjectivity if users only report on indicators for which outcomes are favorable, our use of indicators that stakeholders deemed important and that were validated in a variety of country contexts responds to the need for relevant and useful information. Additionally, projects should report on all indicators that they collect.

Table 8 presents the MI indicators collected in the four country studies. Not all MI indicators were collected across all countries owing to differences in the study objectives, country contexts, the

¹¹ Projects that may not have explicit strategies to empower women but aim to reach and benefit women can also use pro-WEAI to ensure that interventions do not contribute to disempowerment.

evolution of the tool, and other refinements resulting from the lessons learned in each iteration. Based on our assessment of the indicators’ ease of implementation and the added value of the information collected, we selected a final set of six MI indicators marked by (*) in Table 8.

Figure 1 Pro-WEAI for Market Inclusion (pro-WEAI+MI)



Source: Authors.

Table 7. Pro-WEAI indicators and definitions of adequacy

Indicator ^A	Definition of adequacy
<i>Intrinsic Agency</i>	
Autonomy in income	More motivated by own values than by coercion or fear of others’ disapproval: <i>Relative Autonomy Index</i> ^B score ≥ 1 RAI score is calculated by summing responses to the three vignettes (yes=1; no=0), using the following weighting scheme: -2 for vignette 2 (external motivation), -1 for vignette 3 (introjected motivation), and +3 for vignette 4 (autonomous motivation)
Self-efficacy	“Agree” or greater on average with self-efficacy questions from the <i>New General Self-efficacy Scale</i> ^C

Indicator ^A	Definition of adequacy
Attitudes about intimate partner violence against women	Believes husband is NOT justified in hitting or beating his wife in all 5 scenarios ^D : 1) She goes out without telling him 2) She neglects the children 3) She argues with him 4) She refuses to have sex with him 5) She burns the food
<i>Instrumental Agency</i>	
Input in livelihood decisions	Meets <u>at least ONE of the following</u> conditions for <u>ALL of the agricultural and non-agricultural activities</u> they participate in 1) Makes related decision solely, 2) Makes the decision jointly and has at least some input into the decisions 3) Feels could make decision if wanted to (to at least a MEDIUM extent)
Ownership of land and other assets	Owns, either solely or jointly, <u>at least ONE of the following</u> : 1) At least THREE types of assets 2) Land
Access to and decisions on financial services	Meets <u>at least ONE of the following</u> conditions: 1) Belongs to a household that used a source of credit in the past year AND participated in at least ONE sole or joint decision about it 2) Belongs to a household that did not use credit in the past year but could have if wanted to from at least ONE source 3) Has access, solely or jointly, to a financial account
Control over use of income	Has input in decisions related to how to use BOTH income and output from ALL of the agricultural activities they participate in AND has input in decisions related to income from ALL non-agricultural activities they participate in, unless no decision was made
Work balance	Works less than 10.5 hours per day: Workload = time spent in primary activity + (1/2) time spent in childcare as a secondary activity
Visiting important locations	Meets <u>at least ONE of the following</u> conditions: 1) Visits at least TWO locations at least ONCE PER WEEK of [city, market, family/relative], or 2) Visits least ONE location at least ONCE PER MONTH of [health facility, public meeting]
<i>Collective Agency</i>	
Group membership	Active member of at least ONE group

Source: Adapted from Malapit et al. (2019).

Notes: ^A More information on these indicators can be found in the pro-WEAI instructional guide, available here: <https://weai.ifpri.info/weai-resource-center/guides-and-instruments/>.

^B The Relative Autonomy Index (RAI), based on self-determination theory, is a measure of internal and external motivations that determine person's decisions (Ryan & Deci, 2000).

^C The New General Self-efficacy Scale (NGSE) is a validated scale to measure self-efficacy, or a person's capabilities and ability to reach their goals (Chen et al., 2001).

^D These scenarios are based on previously validated items from the Demographic and Health Surveys (Yount et al., 2014).

Table 8. Dashboard of Pro-WEAI+MI optional indicators and definitions of adequacy

Indicator	Definition of Adequacy	Collected in:				Notes
		PH	BD	BN	MW	
Entrepreneurship						
Autonomy in type of products to make/sell	Respondent has autonomy (RAI>1) in type of products to make/sell	X	X			Autonomy across these different types of decisions tend to be highly correlated, which is already captured by the pro-WEAI indicator on <i>Autonomy in income</i> . The autonomy stories have similar structures, which can be repetitive when asked in relation to similar types of decisions.
Autonomy in location of enterprise	Respondent has autonomy (RAI>1) in location of enterprise	X	X			
Autonomy in type of enterprise	Respondent has autonomy (RAI>1) in type of enterprise	X				
Autonomy in size of enterprise	Respondent has autonomy (RAI>1) in size of enterprise		X			
Entrepreneurial mindset*	Adequate if agrees on at least six statements out of 11.			X	X	The number of statements has been reduced to five. Adequacy is defined as agreement on three out of five statements, and no disagreement on any statement.
Wage Employment						
Autonomy in whether to work for pay	Respondent has autonomy (RAI>1) in whether to work for pay		X			For projects that focus on wage employment, we recommend collecting <i>Autonomy in working conditions</i> , which broadly captures these related decisions.
Autonomy in type of wage work	Respondent has autonomy (RAI>1) in type of wage work	X	X			
Autonomy in working conditions*	Respondent has autonomy (RAI>1) in working conditions	X	X			
Attitudes about use of GBV by male employer/landlord	Adequate if respondent replies that a male employer/landlord hitting or beating his female workers or tenants is not justified in any of the four stated situations.	X				Attitudes about IPV against women is already collected in pro-WEAI. We recommend using the indicator <i>Feels safe from sexual harassment while working</i> (below).
Main Value Chain						
Control over use of income and outputs from the main value chain*	Participates in and has input into decisions related to how to use income from the main value chain	X		X	X	
Input in decisions about main value chain*	Makes the decision, has input in decisions, or feels could make decision if wanted to about the main value chain	X		X	X	
Empowerment environment: Access to reliable sanitation while working						
Access to reliable sanitation while working*	Has access to a clean and safe space to urinate, defecate, and wash their hands, respectively, at their place of work.			X	X	
Empowerment environment: Sex and fertility agency						
Decides on number of children to have	Makes the decision and has input in the decision about the number of children to have.			X	X	We do not recommend these indicators because it leads to a significant sample drop. Additionally, the impact assessments
Decides on whether to have another child	Makes the decision and has input in the decision on whether to have a/another child.			X	X	

Indicator	Definition of Adequacy	Collected in:				Notes
		PH	BD	BN	MW	
Decides on whether to use contraceptives	Makes the decision and has input in the decision on whether to use contraceptives.			X	X	we worked on did not address these issues directly.
Decides on what type of contraceptive to use	Makes the decision and has input in the decision on what types of contraceptives to use.			X	X	
Decides on when to have sex	Makes the decision and has input in the decision on when to have sex with their spouse/partner.			X	X	
Empowerment environment: Feels safe from sexual harassment while working (women only)						
Perceives that other women like them in their community do not experience sexual harassment in their work environment*	Whether others like them in their community experienced remarks that women are not suited for the type of work they do; unwanted attempts to establish a romantic or sexual relationship, made to feel like they were being bribed to engage in sexual behavior, sexually propositioned, and threatened if they did not cooperate sexually.			X	X	<p>This indicator should be calculated for women only. It aims to capture the extent to which women perceive sexual harassment in the work environment as a barrier to her own ability to work.</p> <p>Based on confirmatory factor analysis, we recommend including only these five items: I not suited for the type of work, (E) unwanted relationship attempts, (G) bribed to engage in sexual behavior, (H) sexually propositioned, (I) cooperate sexually</p>

Source: Authors.

Note: Indicators marked by (*) are recommended for future pro-WEAI+MI users.

4.2 What is learned from the MI indicators that we do not capture elsewhere?

Because we designed pro-WEAI+MI to capture variations in empowerment conditions across commodities and value chains, we present descriptive results disaggregated by commodity, except for Bangladesh, where we disaggregate by type of value chain actor. These results should be interpreted as indicative of the types of households targeted for the interventions or involved in specific value chain activities, not as representative of the empowerment status of women and men in these countries.

For each country study, thorough analysis of core pro-WEAI has been presented previously (Malapit et al., 2020; Quisumbing et al., 2021). We first present the average empowerment scores and the share achieving empowerment for women and men and the share of households that achieve gender parity, as well as the percent adequate for each individual indicator, to highlight the additional information from the MI indicators. The qualitative research also helped to confirm which topics were most salient to understanding women's empowerment and revealed how the quantitative indicators relate to each other in varying contexts.

Philippines

Pro-WEAI results indicate that the extent of disempowerment varies across the four VCs but the gap between men's and women's empowerment is small (Table 9). The percentage of respondents achieving empowerment is lowest in the coconut VC, where 47% of women and 51% of men achieve empowerment, and highest in the seaweed VC, where 67% of women and 65% of men achieve empowerment. Additionally, a high proportion of both men and women achieve adequacy with respect to autonomy in their working conditions in all four commodities; for each commodity, a higher proportion of women than men report achieving autonomy with respect to working conditions. Adequacy with respect to input in decisions within the main value chain was close to universal for both men and women alike. This finding is confirmed in the qualitative study, which showed that women were involved at many points in the coconut value chain, from farming the trees, processing and selling whole nuts or coconut flesh, either fresh or dried, or making crafts items. Although less diversity of engagement was

found in the seaweed chain, where few women in the study farmed seaweed plots in the water, many prepared the lines for farming or sold fresh seaweed locally.

Qualitative findings are consistent with a common practice in the Philippines where married women are typically expected to manage the household income. For example, one woman shared that her *“husband gives his full trust in me. All his income is given to me. He trusts me fully because I'm good in handling money”* (Malapit et al., 2020). However, this management role may not necessarily translate to control over income or autonomy in how they spend it. More women than men report having control over income and outputs in the abaca, seaweed, and swine VC households, but the reverse is true for control over overall household income for abaca, coconut, and swine VC households. The qualitative findings revealed that despite commonly held gender norms of equity, for example, in control over household finances and many aspects of child rearing, gender stereotypes shape women's and men's participation in different value chains that can either limit or support their ability to act on their decisions. These stereotypes are often linked to ideas about the appropriateness of specific tasks in seaweed farming at sea or coconut harvesting. These findings illustrate the value of qualitative work in understanding gender dynamics and empowerment in different VC activities.

Both women and men find GBV perpetrated by male employers or landlords less acceptable compared to IPV perpetrated by husbands. Despite women being more empowered than men in some pro-WEAI+MI indicators, women appear to be more accepting of both types of violence compared to men's perceptions of these forms of violence committed against women, consistent with global DHS findings (Sardinha & Catalán, 2018). Women may have lower expectations about their rights in the workplace and within marriage than men do.

Table 9. Empowerment levels and percent of respondents adequate in each empowerment indicator by gender and VC - Philippines

	Abaca				Coconut				Seaweed				Swine			
	Women		Men		Women		Men		Women		Men		Women		Men	
Number of observations	377		296		361		252		378		266		363		251	
Empowerment score	0.80		0.82		0.76		0.79		0.86		0.85		0.79		0.80	
% achieving empowerment	53.3		59.7		47.5		51.2		66.8		65.0		50.8		54.6	
Number of dual adult households	280				239				254				241			
% achieving gender parity	71.8				65.7				76.4				67.2			
Pro-WEAI Indicators	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Autonomy in Income	377	57.2 (49.6)	296	44.7 (49.9)	361	55.6 (49.7)	252	53.1 (50.0)	378	35.9 (47.9)	266	22.9 (42.5)	363	63.4 (48.0)	251	49.1 (50.1)
Attitudes about IPV Against Women	377	36.5 (47.9)	296	47.7 (50.0)	361	42.8 (49.5)	252	49.2 (50.1)	378	55.8 (49.8)	266	59.2 (49.1)	363	38.7 (48.6)	251	50.2 (50.1)
Input in Livelihood Decisions	377	89.4 (31.5)	296	92.9 (25.8)	361	85.4 (35.3)	252	92.2 (27.7)	378	91.21 (28.8)	266	86.5 (34.4)	363	76.0 (43.6)	251	85.7 (35.1)
Ownership of Land & other Assets	377	94.0 (24.9)	296	94.1 (24.0)	361	96.1 (20.1)	252	96.4 (18.6)	378	98.2 (11.5)	266	99.3 (8.7)	363	99.3 (7.4)	251	97.5 (12.5)
Access to & Decisions on Financial Services	377	97.1 (16.9)	296	94.3 (23.3)	361	96.7 (18.0)	252	92.1 (26.5)	378	97.6 (15.3)	266	92.1 (27.2)	363	97.8 (14.7)	251	96.8 (17.6)
Control Over Use of Income	377	61.3 (48.7)	296	65.3 (48.0)	361	44.9 (49.7)	252	59.9 (49.7)	378	81.4 (39.3)	266	71.3 (45.6)	363	43.2 (49.5)	251	43.4 (49.6)
Work Balance	377	42.8 (49.5)	296	68.4 (46.7)	361	48.9 (50.0)	252	70.3 (46.5)	378	35.9 (48.1)	266	57.7 (49.4)	363	57.5 (49.6)	251	67.0 (47.8)
Group Membership	377	80.0 (38.1)	296	61.0 (48.4)	361	64.9 (47.6)	252	42.0 (49.8)	378	90.5 (28.4)	266	82.3 (36.7)	363	79.7 (38.9)	251	71.7 (43.7)
MI indicators																
Autonomy in Working Conditions	377	88.1 (32.5)	295	71.2 (45.4)	357	89.4 (30.9)	252	77.0 (42.2)	371	84.9 (35.8)	262	78.6 (41.1)	361	90.3 (29.6)	251	76.9 (42.2)
Attitudes about use of GBV by employer/ landlord	377	74.3 (43.8)	295	82.0 (38.5)	358	75.7 (43.0)	252	81.7 (38.7)	374	82.4 (38.2)	263	88.2 (32.3)	362	73.8 (44.1)	251	79.3 (40.6)
Input in Decisions of main VC	372	96.5 (18.4)	295	99.3 (8.2)	351	96.0 (19.6)	251	98.0 (14.0)	374	98.9 (10.3)	263	99.2 (8.7)	357	95.0 (21.9)	251	98.4 (12.5)
Control over Income and Outputs from main VC	372	90.1 (30.0)	295	88.8 (31.6)	351	76.4 (42.6)	251	87.6 (33.0)	374	98.4 (12.6)	263	94.7 (22.5)	357	92.4 (26.5)	251	82.1 (38.4)

Source: Authors' calculations.

Bangladesh

In Bangladesh, women are more disempowered than men across the three types of VC actors; the sample also had the lowest gender parity among the country studies. However, the extent of disempowerment varies across livelihood activities, with the largest gender gaps in women and men achieving empowerment among the entrepreneur and wage worker households (Table 10).

Women in entrepreneur and wage-work households have less agency, with only 8.5% and 17.5% of women empowered in entrepreneur and wage-earner households, respectively. Moreover, more men are empowered than women in all three types of households, but with differences across livelihood types. A larger proportion of men in entrepreneur households are empowered (78.8%) compared to men in wage-work (70.3%) and producer households (54%). Empowerment scores exhibit similar patterns across livelihood activities with the largest gap between men's and women's empowerment scores in the entrepreneur households (0.92 versus 0.53) and the smallest in producer households (0.83 versus 0.68), possibly because the entrepreneurial activities concerned are low-return, small-scale activities.

Nevertheless, the results from these additional indicators provide insights into the relative autonomy of men and women in different nodes of the value chain (Table 10). Except for livestock raising (among producer households), a vastly higher proportion of men are adequate with respect to the sub-indicators compared to women. A greater proportion of men are adequate with respect to value chain decisions than women, with the greatest differences found among entrepreneur households and the smallest among producer households. The higher proportion of women achieving adequacy with respect to autonomy in livestock raising reflects the high degree of involvement and decision-making in livestock, even if they may not own larger, more valuable livestock like dairy cows.

Table 10. Empowerment levels and percent of respondents adequate in each empowerment indicator by gender and VC actor - Bangladesh

	Producers				Entrepreneurs				Wage workers			
	Women		Men		Women		Men		Women		Men	
Number of observations	400		326		400		396		399		340	
Empowerment score	0.68		0.83		0.53		0.92		0.58		0.89	
% achieving empowerment	31.0		54.0		8.5		78.8		17.5		70.3	
Number of dual adult households	326				396				339			
% achieving gender parity	40.2				12.1				14.8			
Pro-WEAI Indicators	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Autonomy in Income	400	81.5 (38.9)	326	90.0 (30.1)	400	80.2 (39.9)	396	93.45 (24.8)	400	82.2 (38.3)	344	89.0 (31.4)
Attitudes about IPV Against Women	400	59.5 (49.2)	326	66.7 (47.2)	400	69.2 (46.2)	396	72.7 (44.6)	400	67.7 (46.8)	340	64.7 (47.9)
Input in Livelihood Decisions	400	94.0 (23.8)	326	95.4 (20.9)	400	19.7 (39.9)	396	98.2 (13.2)	400	23.2 (42.3)	344	98.0 (14.1)
Ownership of Land & other Assets	400	82.0 (38.5)	326	98.2 (13.4)	400	81.7 (38.7)	396	98.5 (12.2)	400	72.7 (44.6)	344	97.7 (15.1)
Access to & Decisions on Financial Services	400	70.7 (45.5)	326	80.2 (39.9)	400	78.0 (41.5)	396	92.7 (26.1)	400	64.0 (48.1)	344	81.7 (38.7)
Control Over Use of Income	400	28.2 (45.1)	326	47.0 (50.0)	400	12.2 (32.8)	396	96.5 (18.5)	400	23.0 (42.1)	344	97.7 (15.1)
Work Balance	400	62.7 (48.4)	326	59.6 (49.1)	400	56.0 (49.7)	396	33.0 (47.1)	400	76.2 (42.6)	344	51.5 (50.1)
Visiting Important Locations	400	28.7 (45.3)	326	99.7 (5.5)	400	23.5 (42.5)	396	100.0 (0.0)	400	35.5 (47.9)	344	98.8 (10.7)
Group Membership	400	51.5 (50.0)	326	19.1 (39.4)	400	42.7 (49.5)	396	28.0 (44.9)	400	51.4 (50.0)	344	8.7 (28.3)
MI Indicators												
Access to information about livelihood activities	400	86.2 (34.5)	329	90.6 (29.3)	396	2.3 (14.9)	397	21.4 (41.1)	379	1.6 (12.5)	342	6.1 (24.0)
Autonomy in livelihood activity	400	91.8 (27.6)	329	98.9 (13.4)	396	58.8 (49.3)	397	97.7 (14.9)	379	58.3 (49.4)	342	95.0 (21.8)
Autonomy in types of crops grown	400	78.5 (41.1)	329	90.0 (30.1)								
Autonomy in livestock raising	400	82.2 (38.3)	329	79.9 (40.1)								
Autonomy in Fish production/farming	400	49.2 (50.1)	329	54.41 (49.9)								

	Producers		Entrepreneurs		Wage workers			
	Women	Men	Women	Men	Women	Men		
Autonomy in taking crops/livestock/fish to market	400	71.8 (45.1)	329	85.4 (35.4)				
Autonomy for types of products to make and/or sell in the market			395	49.9 (50.1)	397	90.7 (29.1)		
Autonomy in location of the enterprise			395	52.7 (49.9)	397	92.2 (26.9)		
Autonomy in size of the enterprise			395	48.9 (50.1)	397	90.4 (29.5)		
Autonomy in whether to work for someone else for pay					379	55.2 (49.8)	342	84.2 (36.5)
Autonomy in type of work					379	53.6 (49.9)	342	87.4 (33.2)
Autonomy in working conditions					379	53.6 (49.9)	342	82.8 (37.8)

Source: Authors' calculations. Indicators not applicable to the VC actor type are marked by the shaded areas.

Several important findings from the Bangladesh qualitative study also helped to inform the interpretation of the quantitative results. In Bangladesh, many of those interviewed did not always see empowerment, defined as the ability to take their own decisions and to act on them, as a positive quality for women. One man, an entrepreneur and a farmer, expressed his views in a way that reflected the opinions of many men and women: *“If she takes her own decision without her husband’s consent then other women of this area will not find her [to be] a good woman [even if] she is doing good work.”* The idea that women would be able to act on decisions independently of their husbands was overwhelmingly viewed negatively and characterized as disobeying their husbands. Similarly, another older man of 65 said, *“Men are responsible for acting on those decisions. Women can only share their opinions.”*

Rather than focusing on the ability to make decisions and act on them, the character traits that the respondents linked to empowerment were associated not with power but honor, respect, and good works. For many, a “good” woman is one who obeys her husband, avoids disharmony, is religious, stays at home and prays, and wears the veil. Others added that a good woman worthy of respect talks well, is praised by others, has good manners, takes care of her in-laws, and is a good worker. Good conduct cannot be overestimated and was stated as more important than other aspects of family status or income.

It was nevertheless acknowledged that women whose husbands are overseas or working elsewhere in Bangladesh or who have a long-term illness or disability may need to take decisions and act on them themselves, but it is still expected that they should discuss these decisions, preferably in advance, with their spouses. These discussions helped to interpret different findings on the idea of empowerment both between men and women as well as people working at different nodes of the value chain as well as increasing acceptance of women’s agency among younger men and women.

Benin

In both the nonbeneficiary and beneficiary groups in Benin, both men and women have low levels of empowerment, although more households achieve gender parity in the beneficiary group (45.8%). Only 22.3% of nonbeneficiary women and 33.8% of beneficiary women achieve empowerment, compared with 55.4% and 61.0% of nonbeneficiary and beneficiary men, respectively (Table 11).

A lower percentage of women than men is adequate concerning work balance, with a larger gap among non-beneficiary compared to beneficiary households. Also, lower percentages of women report adequate access to financial services. Although autonomy over income is much lower for both women and men for both groups, a larger percentage of women, especially beneficiary women, achieve adequacy in this indicator. Across both groups, input in decisions over the main VC, control over input and outputs from the main VC, and entrepreneurial attitudes are universally high for both women and men, which may reflect the type of households that are targeted by the ATVET4W program. This pattern seems to be generally consistent with the input in livelihood decisions and control over use of income pro-WEAI indicator, although women perform better on the main VC indicators. Women appear to have better access to WASH facilities while working, but less agency over different fertility decisions. Roughly 60% of respondents report that others like them do not experience sexual harassment while working, and that percentage is even lower among men (52.8%). Given that women and men are subjected to very different types of sexual harassment, it is very likely that this indicator captures different constraints for women and men. Taken together, these findings suggest that women are most constrained by not achieving work balance, and not having autonomy in income nor adequate access to and decisions on credit and financial decisions.

Qualitative findings (Eissler et al., 2021) show that both women and men have decisionmaking power in their respective domains, with men dominating decisions on production (partly owing to gender norms that favor men in ownership and control of land) and women more active in processing. Both engage in marketing and distribution of their crops, products, or livestock, with men managing all larger sales, in both product quantity and sale price, and women the smaller sales for either her or her husband's products.

However, women defer to their husbands in almost all spheres of decision-making. Women beneficiaries reported that securing their husbands' permission was a common barrier to participation. Women also lack full autonomy in seeking new income-generating activities in which to apply new skills or best practices, as she would rely on her husband's consent.

Women's time burden is exacerbated by this need to defer to one's husband and external pressures. Many women indicated they cannot always do what they intend because they are required to prioritize domestic duties above all else. Others expressed external pressures affecting their ability to control their time, specifically a lack of financial means, a need for better time management skills, or a general lack of agency. In contrast, men do not express many limitations to their time, except for their own ability to plan their daily schedules or not having adequate financial means.

Beneficiaries and their husbands also noted increased attention to hygiene in value chain and household activities. Beneficiaries reported abiding by higher hygiene standards, which resulted in less household illness and cleaner products in the value chain. Both beneficiaries and non-beneficiaries also expressed that sexual harassment influences their ability to engage in value chains and workplaces, albeit to varying degrees. Most women and all men indicated never experiencing sexual harassment themselves while working in their target value chain, but also agree that sexual harassment is more dangerous for a married woman, because it could trigger issues between the victim and her spouse. Women who are victims of sexual harassment are generally perceived as being in some way responsible for instigating or accepting the behavior. No accounts of sexual harassment in this study considered men as a victim, only the harasser. Therefore, the extent to which men may be victims of sexual harassment is unclear from this study.

Future interventions should offer activities that are appropriate for women to increase their autonomy over their earned income and are more accessible and convenient according to their availability of time and provide opportunities for women to increase their access to financial services. Moreover, the MI indicators of the empowerment environment suggest that both women and men have limited access to WASH facilities while working and that concerns about sexual harassment are an important concern.

Table 11. Empowerment levels and percent of respondents adequate in each empowerment indicator by gender and treatment - Benin

	Non-Beneficiary				Beneficiary			
	Women		Men		Women		Men	
Number of observations	556		350		210		164	
Empowerment score	0.63		0.83		0.69		0.84	
% achieving empowerment	22.3		55.4		33.8		61.0	
Number of dual adult households	338				153			
% achieving gender parity	33.4				45.8			
Pro-WEAI Indicators	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Autonomy in Income	637	45.4 (49.8)	402	41.3 (49.3)	242	50.4 (50.1)	187	46.0 (50.0)
Self-Efficacy	637	94.5 (22.8)	401	94.8 (22.3)	242	84.7 (36.1)	187	87.7 (32.9)
Attitudes about IPV Against Women	634	54.6 (49.8)	401	84.8 (36.0)	241	47.3 (50.0)	180	71.7 (45.2)
Input in Livelihood Decisions	560	85.7 (35.0)	353	97.7 (14.9)	224	83.9 (36.8)	179	92.2 (26.9)
Ownership of Land & other Assets	637	54.2 (49.9)	402	98.5 (12.1)	242	63.6 (48.2)	187	98.4 (12.6)
Access to & Decisions on Financial Services	637	36.1 (48.1)	402	37.8 (48.6)	242	49.6 (50.1)	187	61.5 (48.8)
Control Over Use of Income	560	81.1 (39.2)	352	96.3 (18.9)	224	76.3 (42.6)	179	91.6 (27.8)
Work Balance	636	27.8 (44.9)	401	56.1 (49.7)	228	37.7 (48.6)	177	55.4 (49.9)
Group Membership	637	54.2 (49.9)	402	41.8 (49.4)	242	77.7 (41.7)	187	57.8 (49.5)
MI Indicators								
Input in Decisions of main VC	446	98.4 (12.4)	243	99.6 (6.4)	160	97.5 (15.7)	110	98.2 (13.4)
Control over use of Income and Outputs from main VC	446	95.5 (20.7)	243	98.8 (11.1)	160	94.4 (23.1)	110	99.1 (9.5)
Entrepreneurial Attitude	556	94.4 (23.0)	350	98.0 (14.0)	210	87.6 (33.0)	164	95.1 (21.6)
Access to reliable sanitation	533	76.7 (42.3)	349	64.8 (47.8)	202	77.2 (42.0)	161	57.8 (49.5)
Access to urination facility	533	91.0 (28.7)	350	89.1 (31.2)	203	92.1 (27.0)	162	82.1 (38.5)
Access to defecation facility	533	82.7 (37.8)	350	74.3 (43.8)	203	85.2 (35.6)	161	67.1 (47.1)
Access to hand washing facility	533	85.9 (34.8)	349	73.6 (44.1)	202	86.1 (34.6)	161	73.9 (44.0)
Decides on number of children to have	509	47.9 (50.0)	279	79.6 (40.4)	186	52.2 (50.1)	132	80.3 (39.9)
Decides on whether to have another child	511	46.8 (49.9)	272	74.6 (43.6)	194	51.5 (50.1)	124	76.6 (42.5)
Decides on whether to use contraceptives	460	40.0 (49.0)	305	48.2 (50.0)	192	47.4 (50.1)	137	59.1 (49.3)
Decides on what type of contraceptive to use	445	40.7 (49.2)	285	55.8 (49.8)	185	50.3 (50.1)	139	63.3 (48.4)
Decides on when to have sex	523	41.5 (49.3)	269	88.5 (32.0)	194	39.2 (48.9)	119	91.6 (27.9)
Never perceived that others in community experienced sexual hostility	534	60.7 (48.9)	335	61.8 (48.7)	210	60.0 (49.1)	161	52.8 (50.1)

Source: Authors' calculations.

Malawi

In the Malawi sample, women are more disempowered compared to men in nonbeneficiary households, whereas women are slightly more empowered than men in the beneficiary sample (Table 12). Similarly, a larger proportion (73.9%) of dual-adult beneficiary households achieve gender parity compared with nonbeneficiary households (65.6%). Because the ATVET4W program was in its very early stages in Malawi, the beneficiary group is much smaller than the non-beneficiary group.

Similar to the Benin results, the MI indicators around the main VC are universally high with gender gaps favoring men, with the exception of the control over use of income and outputs from main VC in beneficiary households where women show substantially higher achievement compared to men (Table 12). The pro-WEAI indicators on input in livelihood decisions and control over income show similar patterns, with high achievements for both women and men, and gender gaps that favor men. In contrast, autonomy in income appears to be a constraint for both women and men, although women in both nonbeneficiary and beneficiary groups fare better than men in this indicator. Access to WASH is particularly low in this sample, although handwashing facilities appear more accessible, particularly for men. When it comes to fertility decisions, as expected men tend to have more agency over whether and when to have children, and when to have sex. However, women do appear to have more agency around the use of contraception. Sexual harassment in the working environment is a very important constraint in this setting, with very low percentages of women and men reporting never perceiving sexual harassment.

The qualitative research in Malawi also highlighted effects of sexual harassment and gender-based violence on women's ability to expand their engagement in market systems and to ensure their ability to benefit from their activities. From this work, we learned that sexual harassment indicators are important because the likelihood of sexual harassment influences women's decision making. For instance, social norms deem promiscuity unacceptable, which greatly influences women's interactions with men outside their families and how they may conduct business in their communities. Such qualitative findings suggest that women who do work and/or conduct their business openly in the community may be

perceived as suggestive or inviting sexual attention regardless of her intentions. Measuring perceptions of sexual harassment in pro-WEAI+MI will enable us to track how these norms may or may not change over time.

Across both nonbeneficiary and beneficiary groups, work balance is an important constraint. Attending training adds to the work burden of the beneficiary, one constraint that limited the implementation of the household approach – sending two participants to training was extremely time consuming. Limited access to financial resources may also inhibit beneficiaries’ ability to implement the livelihood-specific training they received.

Table 12. Empowerment levels and percent of respondents adequate in each empowerment indicator by gender and treatment – Malawi

	Non-Beneficiary				Beneficiary			
	Women		Men		Women		Men	
Number of observations	429		274		110		89	
Empowerment score	0.88		0.95		0.85		0.84	
% achieving empowerment	68.1		86.5		62.7		57.3	
Number of dual adult households	273				88			
% achieving gender parity	65.6				73.9			
Pro-WEAI Indicators	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)	N	Mean (SD)
Autonomy in Income	431	54.8 (49.8)	299	47.2 (50.0)	111	56.8 (49.8)	95	35.8 (48.2)
Self-Efficacy	431	83.8 (36.9)	299	86.0 (34.8)	111	88.3 (32.3)	95	88.4 (32.2)
Attitudes about IPV Against Women	430	81.2 (39.1)	290	93.1 (25.4)	111	87.4 (33.3)	90	87.8 (32.9)
Input in Livelihood Decisions	430	90.7 (29.1)	294	96.3 (19.0)	110	95.5 (20.9)	95	99.0 (10.3)
Ownership of Land & other Assets	431	94.9 (22.0)	299	99.7 (5.8)	111	85.6 (35.3)	95	100.0 (0)
Access to & Decisions on Financial Services	431	71.9 (45.0)	299	74.6 (43.6)	111	52.3 (50.2)	95	51.6 (50.2)
Control Over Use of Income	430	87.7 (32.9)	294	92.9 (25.8)	110	89.1 (31.3)	95	76.8 (42.4)
Work Balance	431	43.2 (49.6)	286	59.4 (49.2)	111	35.1 (48.0)	94	45.7 (50.1)
Group Membership	431	93.0 (25.5)	299	91.6 (27.7)	111	89.2 (31.2)	95	91.6 (27.9)
MI Indicators								
Input in Decisions of main VC	345	97.4 (16.0)	225	99.1 (9.4)	102	99.0 (9.9)	83	98.8 (11.0)
Control over use of Income and Outputs from main VC	345	95.9 (19.8)	225	97.3 (16.1)	102	95.1 (21.7)	83	84.3 (36.6)
Entrepreneurial Attitude	429	89.7 (30.4)	274	93.8 (24.2)	110	89.1 (31.3)	89	93.3 (25.2)
Access to reliable sanitation	429	28.4 (45.2)	273	35.2 (47.8)	110	15.5 (36.3)	89	23.6 (42.7)

	Non-Beneficiary				Beneficiary			
	Women		Men		Women		Men	
Access to urination facility	429	52.9 (50.0)	273	53.5 (50.0)	110	33.6 (47.5)	89	51.7 (50.3)
Access to defecation facility	429	35.4 (47.9)	273	42.1 (49.5)	110	20.9 (40.9)	89	27.0 (44.6)
Access to hand washing facility	429	51.3 (50.0)	273	63.4 (48.3)	110	50.9 (50.2)	89	74.2 (44.0)
Decides on number of children to have	285	66.0 (47.5)	181	91.7 (27.6)	87	72.4 (45.0)	37	83.8 (37.4)
Decides on whether to have another child	277	63.5 (48.2)	192	89.1 (31.3)	84	72.6 (44.9)	38	78.9 (41.3)
Decides on whether to use contraceptives	187	86.6 (34.1)	204	71.1 (45.5)	57	86.0 (35.0)	57	70.2 (46.2)
Decides on what type of contraceptive to use	154	84.4 (36.4)	219	59.4 (49.2)	49	81.6 (39.1)	55	58.2 (49.8)
Decides on when to have sex	332	43.7 (49.7)	171	98.8 (10.8)	96	49.0 (50.3)	47	91.5 (28.2)
Never perceived that others in community experienced sexual hostility	419	42.5 (49.5)	271	22.1 (41.6)	110	35.5 (48.1)	89	16.9 (37.6)

Source: Authors' calculations.

5. CONCLUSIONS

We aimed to develop a metric that could capture women's and men's empowerment across commodity VCs, VC actors, and beneficiaries of value chain/training interventions. In this section we summarize the lessons we learned from fielding pro-WEAI+MI, conducting qualitative research, and offer good practice recommendations for future users of the tools.

5.1 Lessons from fielding pro-WEAI+MI surveys

In this paper we described the overall process of developing the pro-WEAI+MI instrument to expand the measurement of empowerment beyond production and processing, considering respondents' roles in higher nodes of AVCs and in formal and informal wage employment. We used an iterative approach, building on the latest versions of qualitative and quantitative tools and adapting them to the context and specific project goals in each country case study. The evolution of the tool reflects the lessons learned from implementation and contributed to improved versions of the questionnaire, interview guides, and the dashboard of additional indicators. We iterated between qualitative and quantitative methods within each country case study, allowing us to use findings from each data collection round to inform the instruments used for subsequent rounds. For example, starting with the quantitative survey in the Philippines revealed the difficulty of reaching respondents working on processing, and trading and marketing. We then used the qualitative interviews to fill in the data gaps for these types of respondents. The Bangladesh survey, which collected questions related to the specific node of the value chain in the relevant subsample, did not adequately consider household livelihood diversification. We then expanded the scope of the production decisions module to include livelihood decisions in subsequent versions of pro-WEAI. Despite differences owing to both variations in context and the evolution of the tool, their grounding in a common metric, pro-WEAI, enables comparisons across case studies.

Our experience highlights three lessons for implementing pro-WEAI+MI. First, the sampling strategy needs to be designed to capture the key actors in a value chain, especially if interventions are targeted to those actors. Second, the market inclusion indicators cannot stand alone; they must be

interpreted alongside the pro-WEAI indicators. Third, not all market inclusion indicators will be relevant for all value chains. Users should conduct formative research on the experiences of women and men in the target value chains in the context of the program to select which market inclusion indicators to prioritize. This highlights the utility of a dashboard of indicators layered onto the core pro-WEAI indicators.

Sampling strategy

Pro-WEAI was designed for implementation in a project context. Sampling guidelines for pro-WEAI, therefore, focus on obtaining data from the intervention and comparison groups. Similarly, pro-WEAI+MI, intended for use in designing, implementing, monitoring, and assessing market inclusion and value chain interventions, should obtain data on the intended beneficiaries of an intervention, and if used for impact assessment, for a counterfactual. For such impact assessments to be useful, the evaluation design must be sound; without it, a well-designed instrument with detailed questions on the relevant value chain and intervention will not yield the information that program designers and implementors need. Diagnostic studies, while not requiring a comparison group, must ensure that actors in higher nodes of the value chain (processors, traders, aggregators) are represented. Where such higher-node actors are too few to feasibly include in surveys, more focused, in-depth interviews of these VC actors may be a cost-effective way of getting information. In all country case studies, the purposive sampling strategy implies that the results should not be taken as statistically representative of the country or region. This guidance is part of the pro-WEAI implementation guidelines and applies here.

Adapting the pro-WEAI questionnaire

Pro-WEAI+MI augments pro-WEAI by adding a dashboard of new indicators; however, the market inclusion indicators will not, by themselves, provide information on women's and men's empowerment. For the most part, the market inclusion indicators do not require any alteration to the pro-WEAI questionnaire beyond the simple addition of questions. The pro-WEAI+MI indicators measuring *input in decisions about the main VC* and *control over use of income and outputs from the main VC* use

the same questions as pro-WEAI but expand the activity lists to capture information for the main VC. Calculating these new indicators requires light adaptations to the pro-WEAI questionnaire.

While one could expand the list of commodities/activities included in the module—and hence, the number of indicators to be measured—ad infinitum, we recommend limiting additions to one or two commodities/activities at most, as each one potentially adds to interview length and contributes to respondent/enumerator fatigue.

The dashboard approach

Because VCs—and VC interventions—vary across cultures and contexts, different sets of market inclusion indicators will be relevant to users of pro-WEAI+MI. We have proposed six MI indicators covering the following areas: (1) entrepreneurial mindset; (2) autonomy in working conditions; (3) control over use of income and outputs from the main VC; (4) input about decisions about the main VC; (5) access to reliable sanitation while working; and (6) feels safe from sexual harassment while working. These additions and enhancements increase pro-WEAI’s ability to measure and contextualize empowerment and inclusion across VCs.

Our recommendation of a dashboard approach in market inclusion project is similar in spirit to our recommendation for health and nutrition projects. Pro-WEAI for health and nutrition (pro-WEAI+HN) (Heckert et al., 2022) includes a dashboard of indicators intended to measure agency in health and nutrition decisions but used a different approach to indicator development. The rationale for a dashboard, rather than another multidimensional index, is that not all decisions will be relevant to all women (not all women will be pregnant or lactating, for example). The health and nutrition indicators were selected based on psychometric analysis of pooled data from GAAP2 projects that implemented the health and nutrition module. The pooled data approach would not have been appropriate to developing market inclusion indicators given the heterogeneity of market inclusion interventions; health and nutrition decisions have a biological basis, even if the decisionmaking process is shaped by gender norms and specific context. Like the recommendation for the health and nutrition indicators (Heckert et al., 2022),

we recommend that studies use the individual indicators rather than aggregate them, which would ignore the differences across the dimensions each indicator covers. Moreover, because some indicators apply only to specific types of projects, aggregation would impose a false mask of uniformity and would be difficult to interpret.

5.2 Lessons from conducting qualitative research

Conducting high-quality qualitative research with pro-WEAI+MI requires thoughtful reflection during the planning, data collection, and analysis phases of qualitative research. In the planning phase, consider the unique objectives of the study. For instance, determining which gendered aspects of a theory of change are most important to explore or considering which knowledge gap(s) are most critical to fill will help you conduct an effective qualitative pro-WEAI+MI study. In thinking through the unique objectives of your study, we advise considering which type of qualitative study would best support your aims: exploratory, impact assessment, process evaluation, or a ‘complementary’ study, where you collect qualitative data to enhance the interpretation of the quantitative pro-WEAI+MI indicators and empowerment scores that are later calculated. Is the comparison of interest between actors at different nodes of the VC, or different VCs, or project beneficiaries versus control groups?

The type of qualitative study may affect when the qualitative work should be collected relative to the quantitative work (e.g., an exploratory study should be conducted prior to any quantitative data collection). However, the timing of the qualitative study is always less critical than doing the qualitative study well. In the earlier pro-WEAI work, we originally planned to conduct the qualitative studies prior to the quantitative surveys to inform survey questions but resource and logistical constraints made doing so challenging in many cases. We found that doing the qualitative research later had unanticipated benefits: it allowed for more robust interviews about project activities with both beneficiaries and project staff, and, where the qualitative work followed a preliminary analysis of empowered and disempowered respondents from the survey sample, it permitted in-depth questioning about the respondents’ characteristics.

Pro-WEAI+MI is structured to support the use of multiple qualitative protocols; we developed different protocols to use with different types of respondents based on their location along a VC and/or their relationship to the project being evaluated. Using multiple protocols facilitates gleaning information from a variety of perspectives, which deepen our understanding of agricultural development projects and their influences on empowerment as women and men may have different opportunities, constraints, and aspirations. Further, these gendered opportunities, constraints, and aspirations may vary by VC node, or by agricultural product, age, household structure, or any other characteristic that may be salient in your study population.

During analysis, we strongly encourage researchers to look for interlinkages between the qualitative data and indicators and/or domains. For instance, in Malawi, we found that women do not necessarily perceive income generation opportunities as positive; rather, paid work may constrain time-use agency as women may have to be physically present at a specific workplace for long stretches of time (Ragasa et al., 2020). Examining the qualitative data for such linkages will help contextualize empowerment within and between AVCs and offer insights into why certain quantitative indicators may or may not change over time.

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