

June 2025

The Extent of Gender Integration Within Technical Guidance on Smallholder Agricultural Commercialization: A Scoping Review

Colby Jordan Silvert

University of Maryland at College Park, csilvert@umd.edu

John M. Diaz

University of Florida, john.diaz@ufl.edu

Renata Serra

University of Florida, rserra@ufl.edu

See next page for additional authors

Follow this and additional works at: <https://newprairiepress.org/jiaee>



Part of the [Food Security Commons](#), [Gender and Sexuality Commons](#), and the [Rural Sociology Commons](#)



This work is licensed under a [Creative Commons Attribution-Noncommercial 4.0 License](#)

Recommended Citation

Silvert, C. J., Diaz, J. M., Serra, R., Cole, S. M., Warner, L. A., & Roberts, T. (2025). The Extent of Gender Integration Within Technical Guidance on Smallholder Agricultural Commercialization: A Scoping Review. *Journal of International Agricultural and Extension Education*, 32(2). DOI: <https://doi.org/10.4148/2831-5960.1513>

This Literature Review is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in Journal of International Agricultural and Extension Education by an authorized administrator of New Prairie Press. For more information, please contact cads@k-state.edu.

The Extent of Gender Integration Within Technical Guidance on Smallholder Agricultural Commercialization: A Scoping Review

Abstract

This scoping review explored the extent to which gender and women's empowerment concepts have been integrated within technical guidance that extension and development practitioners may use to guide their facilitation of smallholder agricultural commercialization. Past studies show that gender disparities persist and may be exacerbated by shifts in smallholder agricultural commercialization, reinforcing the need for this review. The scoping review and its qualitative analysis of technical expertise and resources found online (e.g., handbooks, guides, etc.) were framed using the Reach-Benefit-Empower-Transform (RBET) framework. Three central conclusions were derived from the review. First, simply analyzing the inclusion of words for gender or women's empowerment in technical materials does not reveal whether they address gender issues in substantive ways. Second, significant gaps were apparent in the gender integration (or lack thereof) within materials focusing on finance and digitization/e-commerce for smallholder agriculture presenting a critical area for further exploration and investment. Third, significant discrepancies between gender integration in documents with a gender emphasis and documents with other commercialization foci suggest gender experts and experts on other topics in smallholder commercialization often work in silos without effective collaboration.

Keywords

commercialization, Reach-Benefit-Empower-Transform, scoping review, smallholder agriculture, technical guidance

Authors

Colby Jordan Silvert, John M. Diaz, Renata Serra, Steven M. Cole, Laura A. Warner, and T. Grady Roberts

The Extent of Gender Integration Within Technical Guidance on Smallholder Agricultural Commercialization: A Scoping Review

Colby J. Silvert, *University of Maryland at College Park*

John M. Diaz, *University of Florida*

Renata Serra, *University of Florida*

Steven M. Cole, *CGIAR International Institute of Tropical Agriculture*

Laura M. Warner, *University of Florida*

T. Grady Roberts, *University of Florida*

Abstract

This scoping review explored the extent to which gender and women's empowerment concepts have been integrated within technical guidance that extension and development practitioners may use to guide their facilitation of smallholder agricultural commercialization. Past studies show that gender disparities persist and may be exacerbated by shifts in smallholder agricultural commercialization, reinforcing the need for this review. The scoping review and its qualitative analysis of technical expertise and resources found online (e.g., handbooks, guides, etc.) were framed using the Reach-Benefit-Empower-Transform (RBET) framework. Three central conclusions were derived from the review. First, simply analyzing the inclusion of words for gender or women's empowerment in technical materials does not reveal whether they address gender issues in substantive ways. Second, significant gaps were apparent in the gender integration (or lack thereof) within materials focusing on finance and digitization/e-commerce for smallholder agriculture presenting a critical area for further exploration and investment. Third, significant discrepancies between gender integration in documents with a gender emphasis and documents with other commercialization foci suggest gender experts and experts on other topics in smallholder commercialization often work in silos without effective collaboration.

Keywords: commercialization, Reach-Benefit-Empower-Transform, scoping review, smallholder agriculture, technical guidance

The Extent of Gender Integration Within Technical Guidance on Smallholder Agricultural Commercialization: A Scoping Review

Introduction and Background

The international development community has come to widely agree that addressing gender equality and women's empowerment is crucial from a human rights standpoint and to achieve global socioeconomic and development goals including increased food security and agricultural productivity, educational access, and women's and maternal health (Cunningham et al., 2015; Gates, 2014; Kabeer 2010; Njuki et al., 2021; Malapit & Quisumbing, 2015). Yet, overall progress towards gender equality goals has been largely unremarkable (Head et al., 2014). In agriculture, women continue to disproportionately face barriers in access to and control over productive and marketing resources, technologies, and opportunities (Boogard et al., 2015; Njuki et al., 2021). Smallholder agricultural commercialization is a critical domain where extension and development practitioners should target improving gender outcomes based on evidence that smallholders' changes in their production and marketing can significantly implicate gender relations (Chanamuto & Hall, 2015; Rao, 2016; Tavenner et al., 2019).

Women play key roles along agricultural value chains and as contributors to food security, especially at the rural household level (Doss et al., 2018). However, social norms and structural inequities commonly hinder women from affording the time and resources to advance their agricultural activities via adopting improved technologies or linking to markets (Meinzen-Dick et al., 2019; Moosa & Tuana, 2014; Rao, 2017). Gender norms at the community and societal levels can also constrain smallholders — and especially women farmers — from engaging in social and commercial networks that can benefit them through enhanced information flow, relationships, and cooperative activities (Masamha et al., 2018). Resultingly, these social norms and power dynamics appear often inhibit women smallholders' capacities to increase farm productivity, obtain loans or credit, and even cope with environmental shocks (Njuki et al., 2021; Djurfeldt et al., 2018). Compared to men, Head et al. (2014) found that women are less likely to own land and livestock, adopt improved technologies, and receive agricultural extension services. Intrahousehold gender dynamics are often significantly associated with women's access to and control over assets and resources; when women have more control over assets, their household bargaining (negotiation) powers improve with other the members of their households, which can lead to greater equality in allocating resources and benefits (Boogard et al., 2015). While concepts of ownership and asset rights are highly variable across contexts and genders, cultural norms and customary or statutory laws in many communities restrict women from owning land and gaining rights to assets and resources (Huyer, 2016; Kilic et al., 2020).

Researchers have also documented gendered tendencies and norms pertaining to different types of agricultural activities and production systems. Women in many contexts tend to be responsible for subsistence or consumption farming activities while men often control sales and more "lucrative activities" (Masamha et al., 2018; Njuki et al., 2011; Tavenner et al., 2019). Accordingly, smallholder diversification (i.e., cultivating and/or raising an array of different crops and livestock for consumption and/or marketing) has been shown to better contribute to gender equity — contrasted with intensification of a single cash crop — through facilitating opportunities and benefits for *both* men and women (Tavenner et al., 2019). Additional benefits of diversification for men and women smallholders include reducing risks of crop failure, market volatility, household food insecurity, and climate change (Heumesser & Kray, 2019). Therefore,

shifts in agricultural production and commercialization towards increased income generation — especially when concentrated on a single or few activities — frequently benefit men and can deepen gender divisions (Masamha et al., 2018; Tavenner et al., 2019).

Agricultural development actors and practitioners have been called on to help reverse and prevent the phenomenon of crop and livestock commercialization resulting in more work for women but less benefits, especially regarding control of income (Boogard et al., 2015; Huss-Ashmore, 1996; Tavenner et al., 2019). Experts argue that when smallholder commercialization interventions concentrate on narrow technical and economic outcomes, the risks of perpetuating gender inequities and disparities may be heightened (Njuki et al., 2011; Tavenner et al., 2019). Although research has increasingly shown how agricultural commercialization influences gender outcomes, more exploration is needed to determine opportunity areas where extension and development practitioners can positively intervene and provide guidance (Masamha et al., 2018).

Gender-focused Approaches in Agricultural Extension and Development

Experts have increasingly recommended techniques and approaches, many concentrated on monitoring and evaluation of gender-related outcomes, for agricultural practitioners to better address gender inequalities. For instance, the recent advent of “gender-in-agriculture” specialized indicator frameworks and evaluation tools (e.g., the Women’s Empowerment in Agriculture Index, etc.) can improve practitioners’ ability to monitor whether interventions are achieving gender-focused development goals (Johnson et al., 2018; Malapit et al., 2015). Increasingly, gender analysis is also recommended — especially as a baseline and formative technique — to explore gender-differentiated issues, norms, and relations and inform gender mainstreaming and, in some cases, transformative efforts (Boogard et al. 2015; Kaaria & Ashby, 2001). Gender analysis and mapping can also be used to examine and analyze gender roles and dynamics related to commercialization (e.g., in value chains and households) for practitioners to identify target areas to shift relations and gender positioning (Manfre et al., 2013; Masamha et al., 2018).

Extension and development practitioners are uniquely positioned to address gender issues — at the forefront of assisting smallholders in pursuit of agricultural commercialization. For instance, Sulaiman and Davis (2012) included engaging with rural women, using gender sensitive approaches, and organizing rural women into interest/activity groups as essential capacities for contemporary agricultural extension professionals. However, evidence suggests that traditional technology transfer and “one-size-fits-all” extension approaches can have unintended consequences influencing gender relations, and practitioners should be especially wary of technology packages (e.g., standardized content or resources across clientele) that may reinforce gender stereotypes and divisions of labor (Cohen & Lemma, 2011; Farnworth, 2011). Rather, extension and advisory services for smallholder farmers should be contextualized to account for women’s time, mobility, and economic constraints (Manfre et al., 2013). To provide such tailored services, institutions supporting extension and development practitioners must be equipped with the skillsets and financial, and human resources to provide gender capacity building and oversight for staff. To achieve gender responsive extension and advisory services, Manfre et al. (2013) broadly called for increasing the proportion of women practitioners, equipping practitioners with the necessary knowledge and skills, adapting gender responsive methods to local contexts, and pursuing collaborative, cross-sectoral programming (e.g., linking nutrition and gender with agricultural production activities).

Conceptual Framework

The gender disparities that continue to result from shifts in smallholder farmers' commercialization practices emphasize the need to better understand ways practitioners can facilitate agricultural commercialization interventions that lead to positive gender outcomes. Notwithstanding important progress in introducing techniques and tools to measure and conceptualize gender, we found more emphasis has been placed on monitoring and evaluation related to commercialization while a gap remains in determining whether gender has been adequately contextualized and integrated within technical expertise and resources (e.g., handbooks, guides, etc.) developed to support extension and community practitioners.

To address this research gap, we structured the present study using the Reach-Benefit-Empower-Transform (RBET) framework, proposed by Johnson et al. (2018) and then modified by Kleiber et al. (2019). The framework's original intended utility was to classify gender approaches within agricultural development projects as reaching, benefitting, empowering women, and/or transforming gender relations. The framework was first applied to analyze the objectives, activities/strategies, and monitoring and evaluation indicators of 13 international projects designed to empower women. In our current exploration, rather than projects, we adapted the framework to assess technical guidance resources (e.g., manuals, technical briefs, handbooks) on smallholder agricultural development and commercialization to infer the extent to which gender-focused techniques and methods are included and described.

Johnson et al. (2018) claimed their framework was created to address the lack of consensus regarding how to classify and contrast gender approaches by agricultural development projects. They argued that previously introduced frameworks (e.g., classifications as gender-blind, gender-responsive, gender-equitable, or gender-transformative) are most useful to analyze project goals and objectives against metrics and evaluation tools. However, the researchers posited that these concepts fall short in examining actual gender-focused activities: "identifying 'what works' requires a precise definition not only of whether something worked (the outcome) but also of what was done (the intervention)" (Johnson et al., 2018, p. 3). In other words, the framework was designed to analyze how activities explicitly address gender and women's empowerment, and thus, was deemed appropriate for use in the present study. The RBET framework's four gender classifications and criteria are described below:

Reaching Women

Interventions that reach women encourage women's participation in activities such as trainings, peer groups, or extension interactions. These interventions may concentrate on achieving a certain quota or gender composition (e.g., at least 30% women). In order to achieve such a level of engagement by women, practitioners are commonly tasked with accommodating for gender constraints such as time, mobility, or local gender norms. Johnson et al. (2018) cautioned that narrowly promoting (and recording) participation can have unintended consequences such as women being required to contribute or pay to engage in activities and then being unable to benefit due to intrahousehold dynamics. Practitioners may also overlook ensuring women are always able to decline participation as they wish (Johnson et al., 2018).

Benefitting Women

Interventions that benefit women make certain that women benefit from all activities. To do this, the practitioners inquire about whether women perceive value in the results of the activities — moving beyond the reach classification (Johnson et al., 2018). Furthermore, activities that benefit women differentiate between men's and women's specific constraints and needs. While designs based on women's needs and constraints can lead to benefits for women, practitioners may not fully account for the relations and roles connected to “benefits” that can cause backlash and unforeseen gender divisions (Goodman & Kaplan, 2017).

Empowering Women

“Empowering women involves strengthening their ability to make strategic life choices and to put those into action.” (Johnson et al., 2018, p. 5). The empowerment classification is largely based on Kabeer's (1999) definition of empowerment, summarized as people shifting toward being able to make strategic life choices within a context in which they were previously denied this ability. Accordingly, empowerment activities should address constraints that cause disempowerment such as time burdens, gender-based violence, and lack of agency. Activities that empower also account for women's positionality, relative to men, especially in domains such as household decision-making and control over income and assets (Johnson et al., 2018).

Transforming Gender Relations

Approaches that transform gender relations explicitly engage both men and women, along with local powerholders, to create a broader enabling environment — most often at the community level. These approaches target and shift structural barriers and underlying norms to encourage equality and substantive changes using highly participatory, reflexive, and community driven approaches (Kleiber et al., 2019; McDougall et al., 2015).

These classifications may not always be applied in isolation as they are often mutually reinforcing (e.g., empowerment efforts may be contingent on benefit activities, etc.). For instance, without addressing household dynamics, and women's bargaining power and agency (empowerment focused), activities aiming to benefit women may have unsustainable outcomes (Johnson et al., 2018). For another instance, some capacity building efforts may apply to overlapping classifications; training would most likely be a reach activity but a training activity using content on women's rights with reflection on reducing structural gender barriers could contribute to empowerment or transformative change. By adapting the RBET framework, the present study analyzed a series of systematically compiled and expert recommended technical documents to determine the extent to which their guidelines targeting practitioners align with potentially reaching women, benefitting women, empowering women, and/or transforming gender norms and power relations. A fifth classification — gender blind — was also used for documents in which gender was largely ignored/not included, beyond recognizing men and women exist in agricultural systems (Interagency Gender Working Group, 2017).

Given the breadth in the smallholder agricultural sector and practitioner specializations, this study focuses on materials tailored for lower-income, subsistence/semi-subsistence, and agriculturally diversified contexts (e.g., mixed crop and/or livestock). Within these contexts, research indicates gender disparities persist and may be exacerbated by shifts in smallholder agricultural commercialization, reinforcing the need for this review (Njuki et al., 2011; Tavenner et al., 2019).

Research Question

To what extent are gender and women's empowerment concepts integrated within different categories of readily available technical guidance about facilitating smallholder agricultural commercialization?

Methods

We conducted a scoping review to examine evidence on whether and how substantively gender and empowerment concepts have been integrated within technical guidance documents designed for practitioners who facilitate smallholder agricultural commercialization interventions. Scoping review is a relatively new technique for evidence synthesis and can be contrasted with the more commonly used systematic review method (Munn et al., 2018). A scoping review may be carried out prior to a systematic review because the technique is useful for answering broad questions (rather than discrete questions like a systematic review) and gathering the necessary information to narrow the focus before conducting a systematic review (Arksey & O'Malley, 2005; Sucharew & Macaluso, 2019). We selected this review technique based on experts' advice that this is a suitable methodology for topics that have not been comprehensively reviewed and are broad and multi-faceted (Peters et al., 2015). Precisely aligned with our research question, Molina-Maturano et al. (2020) suggested scoping reviews are appropriate for mapping the extent and nature of accessible evidence on a topic of interest.

Search and Inclusion Criteria

To narrow the research focus, we concentrated this review on the integration of gender concepts within documents containing guidelines, methods, and approaches for practitioners to promote and facilitate commercialization behaviors for a specific subset of smallholder farmers. "Smallholder agriculture" is a broad term and varies based on development, economic, and sociocultural factors and contexts. We limited our review to documents specialized for smallholder farmers' shifts from subsistence or minimal commercialization toward increased levels of commercialization and market orientation — employing commercialization behaviors across production, marketing, processing, and other domains (Pingali & Rosegrant, 1995; Sokoni, 2008; Von Braun et al., 1994). Within this scope, our review concentrated on practices and technologies associated with mixed/diversified crop and livestock farming activities (e.g., grain or root crop, horticultural, and/or mixed livestock production).

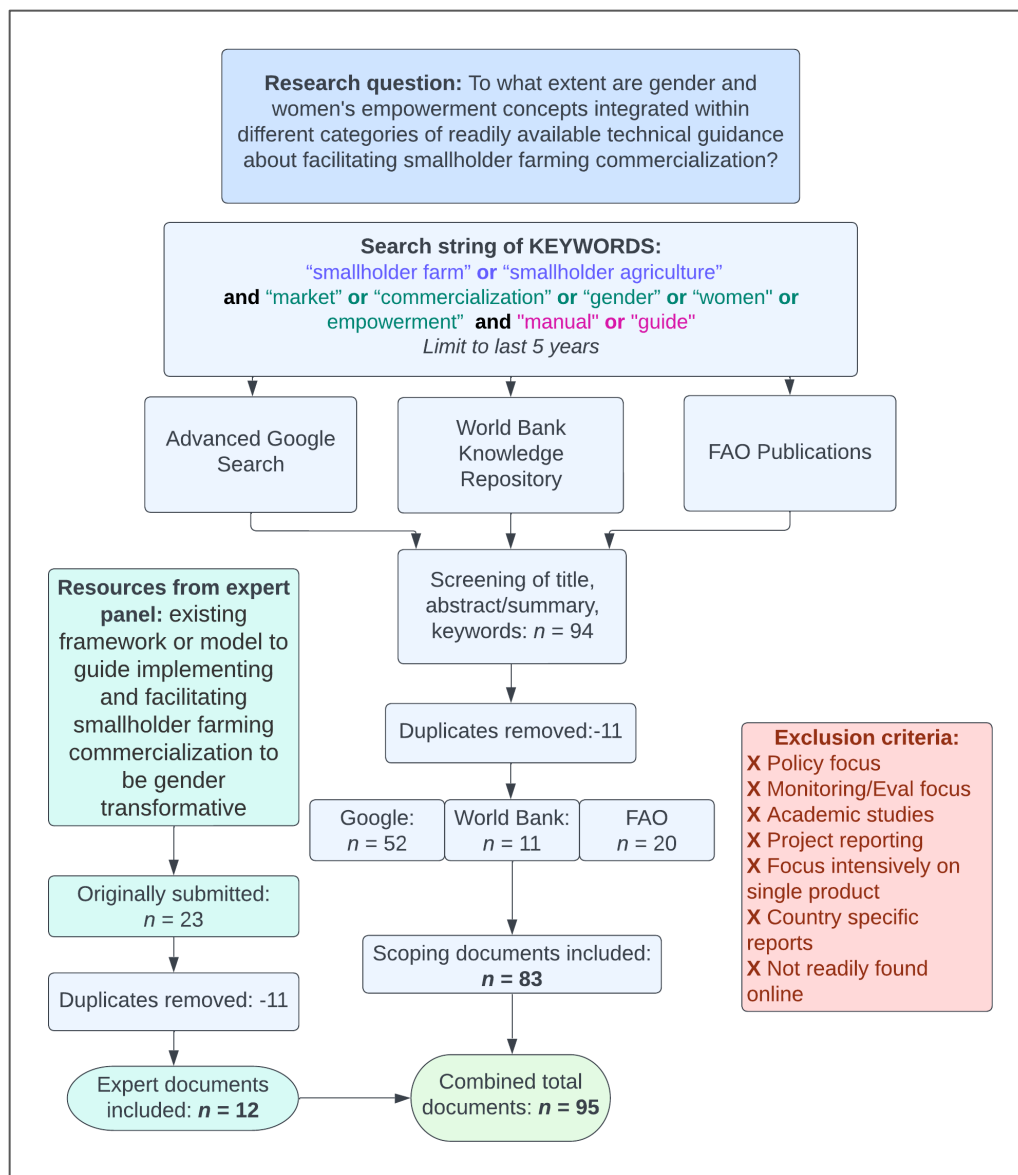
We conducted the search through non-academic sources/search engines to achieve a sample of materials reflecting practical programming guidance — shared/published by nonprofit, private, public, and other development organizations — about facilitating smallholder agricultural commercialization. Our three sources for documents were: *Google Advanced Search*, the *World Bank Knowledge Repository*, and *Food and Agriculture Organization Publications*. Based on exploratory research prior to the review, these sources/search engines were selected because they included a broad variety of readily accessible (online/open access) technical resources and other materials relevant to this study's contextual focus. The most foundational inclusion criterion was documents that were "readily available" online and published or revised within a five-year window (2018 to 2022; the post-review analysis was completed in late 2023). Limiting to this time period was deemed representative of an adequate body of contemporary electronic materials for the purpose of scoping that address current and relevant practical issues along with the period being logistically feasible. "Readily available" was essentially

operationalized to include documents a practitioner or expert could locate and read online without having to request or contact an organization or other owner of resources. Therefore, we did not request any documents by contacting staff at organizations. We reviewed documents that were explicitly tailored for agricultural development and/or extension practitioners involved in the execution and facilitation of smallholder agricultural commercialization interventions. Thus, we excluded documents that appeared primarily concerned with policymaking, monitoring and evaluation, or higher-level administration (full exclusion criteria described in Figure 1).

To locate appropriate documents to review, we used the following search terms/phrases and combinations in all three sources/search engines: “smallholder farm” or “smallholder agriculture,” *and* “market” or “commercialization” or “gender” or “women” or “empowerment,” *and* “manual” or “guide.” Although these documents were contextually developed for smallholder agricultural development, they were broadly applicable across many regions in the world with relevant agricultural systems. We searched for all documents and linked webpages with embedded documents produced by the three sources/search engines. In addition to — and to contrast with — our own search for documents, we assembled a panel of international experts in the areas of gender and smallholder agricultural development practice and asked them to recommend documents based on the research question. These 23 experts hailed from 17 nonprofit, research, and academic organizations and had been involved in research and implementation of gender and empowerment focused agricultural development approaches within the past five years. The experts were asked to suggest an existing framework or model to guide implementing and facilitating smallholder agricultural commercialization to be gender transformative. Using an online anonymous survey, the experts submitted document citations and links, which were consolidated by removing duplicates. Unlike the scoping process, we decided not to limit the experts’ submissions to the last five years because we believed their endorsement of the materials as applicable to current development practice provided screening for relevance. As a result, the earliest of the expert recommended documents was published in 2015. Figure 1 illustrates the scoping process and criteria used to compile documents from our search and documents from the experts for analysis.

Figure 1

Scoping Review Process



We first screened identified documents' titles, abstracts and/or executive summaries, and keywords (all where applicable) to decide whether they met inclusion criteria. A total of 1,752 search results and documents were initially gathered from the scoping search and the experts' submissions. However, it should be noted that in many cases a search result was quickly excluded without a document review because no document existed via the web link or the topic was not relevant. We removed duplicates and any documents based on the inclusion and exclusion criteria in Figure 1. Documents in or translated to English were included in the review. This scoping and screening process resulted in a final sample of 83 documents meeting the review criteria and 12 expert recommended documents for inclusion in the review (total $n = 95$).

Data Analysis

Following initial scoping and eligibility screening for commercialization related documents, we then determined the sub-categories (technical and/or social foci) within the sample. To do this, we categorized the documents according to their explicit concentration, which was most often evident from the cover, abstract, summary, and/or keywords.

Then, we examined whether the central words for “gender” and “women’s empowerment” were included in the text of each document. First, we conducted simple content analysis using word search and word count within the text of each PDF or Word document to quantify the terms “gender,” “gendered,” and “empowerment” or “empower.” We verified the empower text was claiming women’s empowerment and was not void of a gender dimension (e.g., a broad reference to community empowerment would not be counted). For this content analysis, we excluded the cover page, table of contents, author information, and references in each document.

Next, we conducted a rapid qualitative analysis to examine the extent of each document’s gender and/or women’s empowerment guidelines for practitioners. Rapid qualitative analysis is an emergent research technique, often used in health sciences, as an alternative to in-depth qualitative analysis to provide targeted, relevant information and feedback, especially when pressed with short timelines and stakeholder needs (Gale et al., 2019; Lewinski et al., 2021). Per expert recommendations on the technique, we followed a deductive process guided by *a priori* themes to code and organize relevant data (i.e., text) in the documents (Lewinski et al., 2021). A matrix was set up in Excel to manually code and paste the data (text extractions from the documents) according to deductive RBET themes derived from Johnson et al. (2018) and Kleiber et al. (2019). Specifically, we reviewed sections of the documents focused on practical guidelines and recommendations and extracted and classified appropriate quotes using parameters established in Table 1. Quotes were extracted according to whether the guidelines illustrated the potential to reach women, benefit women, empower women, or/and transform gender relations. If the entire document did not align with the RBET criteria and failed to include gender or empowerment concepts, it was classified as *gender blind*. To boost trustworthiness, three social science expert external reviewers validated the process and coding into the RBET matrix (Lincoln & Guba, 1985).

Table 1

Rapid Qualitative Analysis RBET Parameters

Guideline classification	Parameters
Gender blind (applied to whole document)	Gender not addressed nor included in document other than recognizing different gendered farmers exist

Reaches women	• Guidelines encourage women to participate in activities • Barriers to women's participation in activities addressed • Activities and intended outcomes not designed based on women's needs and perceptions
Benefits women	• Guidelines ensure women benefit from all activities by designing them around women's expressed needs and perceptions • Guidelines differentiate between women's, men's, and non-binary people's unique needs
Empowers women	• Guidelines use activities and measures to strengthen women's decision-making power, especially for strategic life choices • Guidelines address sources of disempowerment for women
Transforms gender	• Guidelines target shifts in underlying gender norms and power structures • Guidelines engage men and powerholders in the community and broader environment

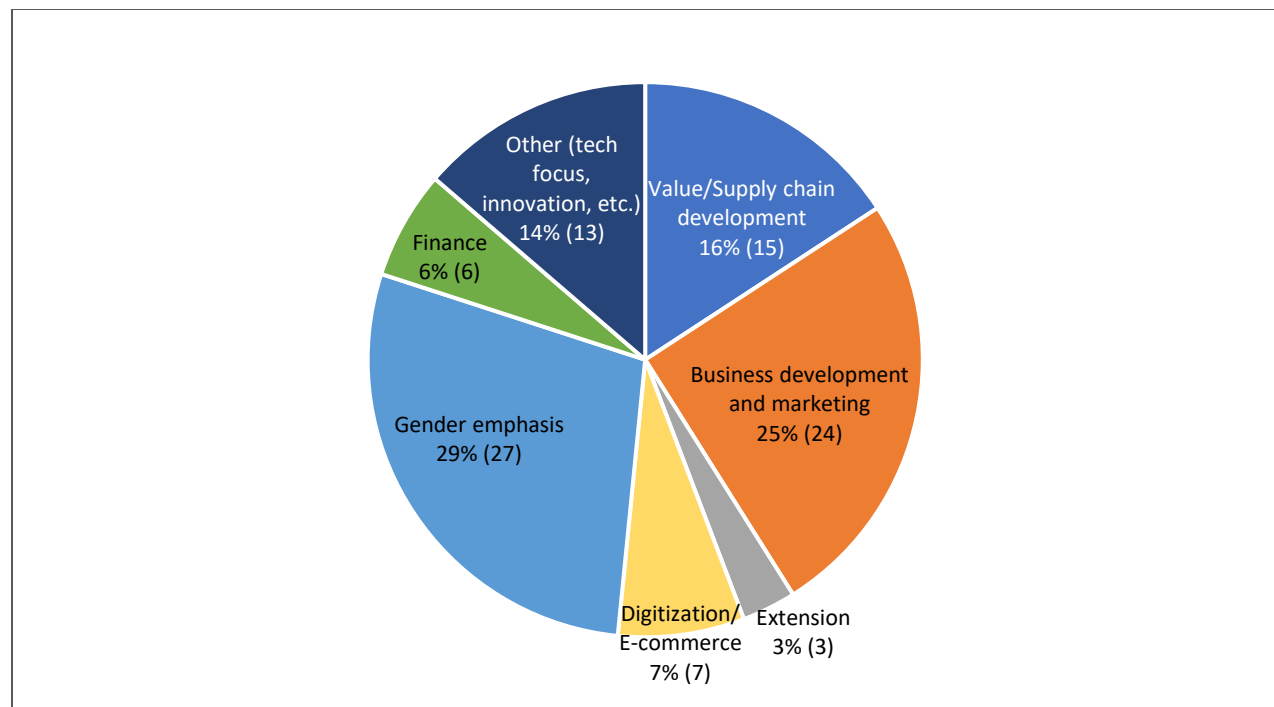
To quantify the content and thematic analyses, we applied descriptive statistics (mean and frequency). We calculated the mean number of mentions of the words for gender and women's empowerment per page rather than the total to ensure the findings were proportionate and representative as the length of documents varied. We used Kruskal-Wallis nonparametric tests of comparison to explore patterns amongst the different categories of documents.

Results

We first classified the documents (from both scoping and expert submissions) through an inductive process into six categories according to their primary foci under the broad umbrella of smallholder agriculture and commercialization (Figure 2).

Figure 2

Breakdown of Documents by Category

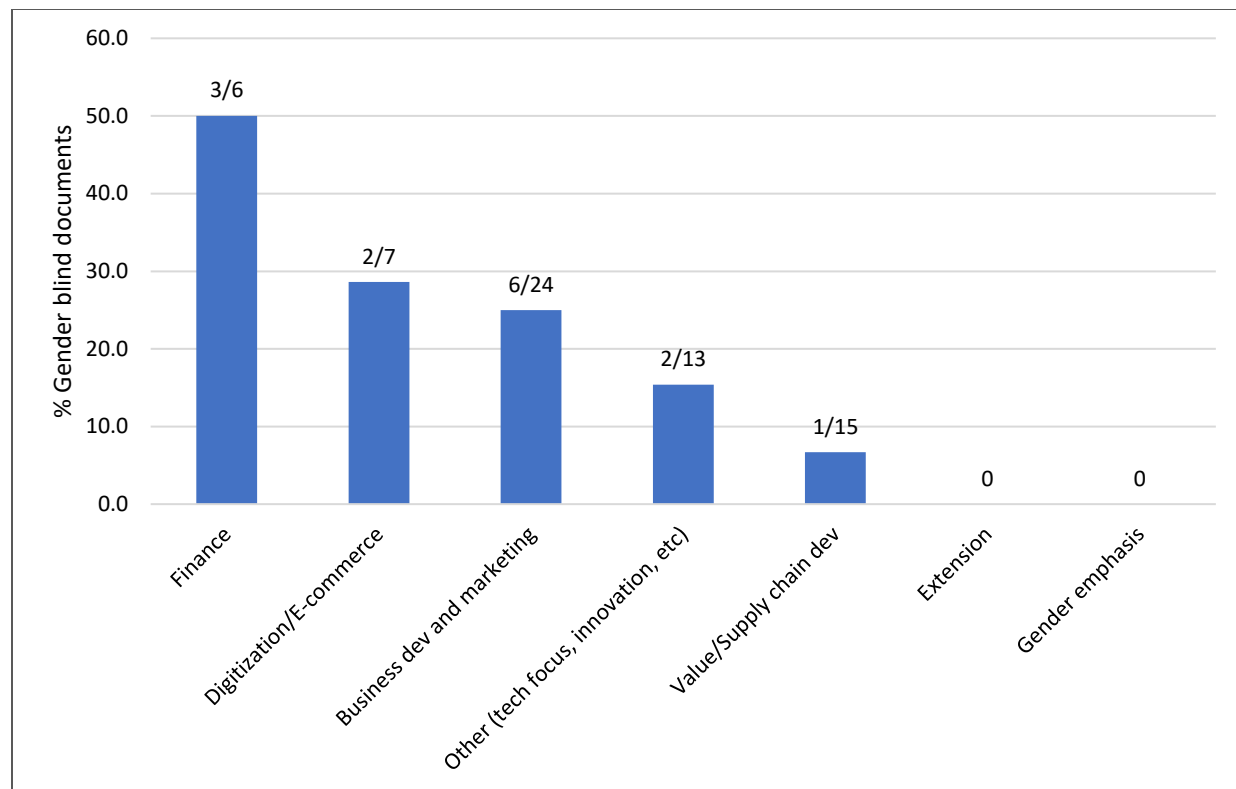


Note. Total sample size (n) = 95

We identified gender blind documents in all of these categories except for gender emphasis and extension (Figure 3). The finance category had the greatest proportion of gender blind documents (50.0%), followed by digitization/e-commerce (28.6%), and thirdly business development and marketing (25.0%). We conducted an independent samples Kruskal-Wallis nonparametric test to check for significant differences in the frequencies of gender blind documents among the categories. The extension category was excluded from this and subsequent nonparametric tests because its sample size was less than the minimum recommended for the test which uses a chi-squared distribution (Lomuscio, 2021). The overall test ($H = 13.92$) was significant at $p < .05$, and pair-wise comparisons indicated a significant difference between the finance and gender emphasis categories ($p < .05$, adjusted via Bonferroni correction).

Figure 3

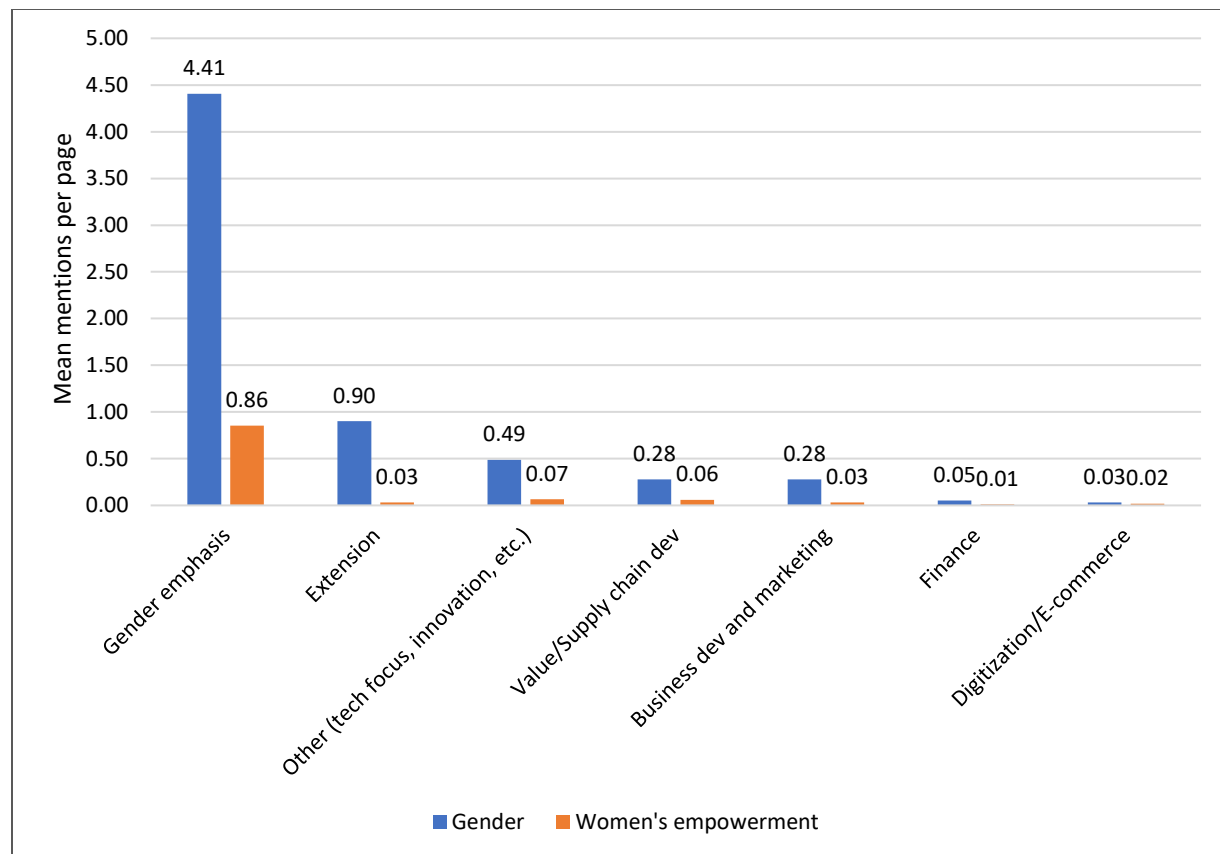
Gender Blind Documents in Each Category



Our analyses of the average number of times the words for gender and women's empowerment (and forms of these words described under methods) were mentioned on each page of the documents revealed a range across the six categories (Figure 4). It should be noted that this analysis did not examine whether the terms were accurately or meaningfully described or discussed — only whether they were included in the text. The gender emphasis category had the highest average mentions of both words (gender: 4.41 per page; women's empowerment: 0.86 per page). Otherwise, the extension documents included the word gender more than the rest of the categories (0.90 per page) while women's empowerment was most prevalent in the other category (0.07 per page) and the value/supply chain category (0.06 per page). Kruskal-Wallis tests were conducted to examine any significant differences among the categories in their inclusion of the words. For gender, the test ($H = 57.88$) was significant at $p < .001$. Significant pairwise comparisons were found for gender emphasis with the rest of the categories (adjusted $p < .001$). The test for empowerment ($H = 39.08$) was also significant at $p < .001$, and pairwise comparisons were significant between gender emphasis and the other categories, all at the adjusted $p < .05$ level, except for the pair with business development/marketing, which was at the $p < .001$.

Figure 4

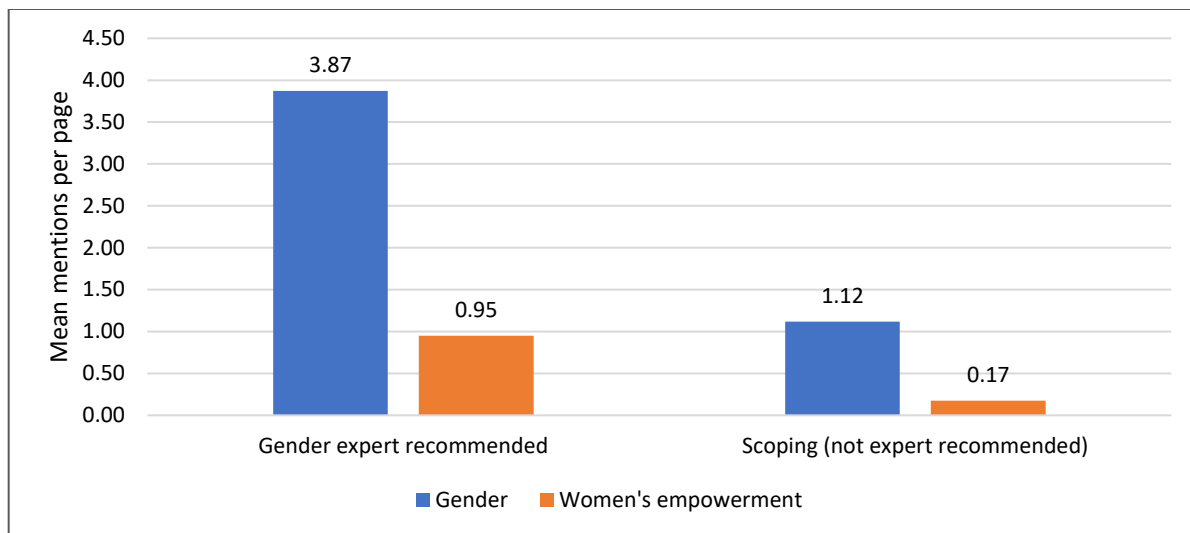
Average Mentions of Gender and Women's Empowerment in Each Category



We also analyzed the average mentions of the gender and women's empowerment words per page by comparing the gender expert recommended documents ($n = 12$) with the documents we gathered via the scoping process (not expert recommended) ($n = 83$). Figure 5 shows that gender was mentioned in the expert recommended documents nearly 3.5 times more often than in the scoping documents, and women's empowerment was mentioned approximately 5.6 times more often in the expert recommended documents than in the scoping documents.

Figure 5

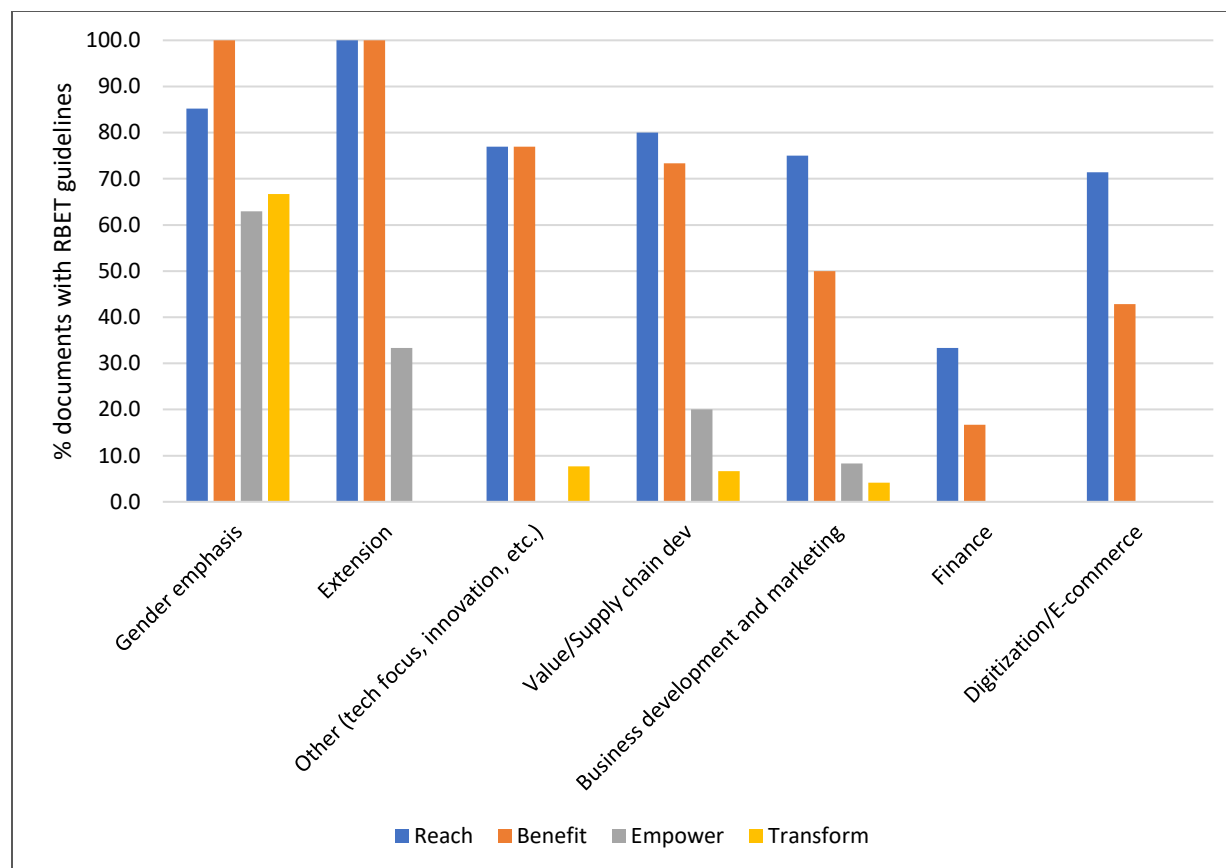
Average Mentions of Gender and Women's Empowerment in Gender Expert Recommended ($n = 12$) versus Documents Found Via Scoping Review ($n = 83$)



We analyzed the documents qualitatively according to the RBET parameters to gain a more in-depth understanding of the extent to which gender and women's empowerment were integrated into the documents. From this qualitative process, we then quantified the proportions of documents in the seven categories with potential to reach, benefit, empower, and/or transform based on their extracted guidelines (Figure 6 and Table 2).

Figure 6

Documents Including Guidelines with the Potential to Reach, Benefit, Empower, and/or Transform Based on Qualitative Analysis

**Table 2**

Documents in Each Category Including Guidelines with the Potential to Reach, Benefit, Empower, and/or Transform Based on Qualitative Analysis

Category	Reach % (f)	Benefit % (f)	Empower % (f)	Transform % (f)
Gender emphasis	85.2 (23)	100.0 (27)	63.0 (17)	66.7 (18)
Extension	100.0 (3)	100.0 (3)	33.3 (1)	0.0 (0)
Other (technology focus, innovation, etc.)	76.9 (10)	76.9 (10)	0.0 (0)	7.7 (1)
Value/Supply chain development	80.0 (12)	73.3 (11)	20.0 (3)	6.7 (1)
Business development and marketing	75.0 (18)	50.0 (12)	8.3 (2)	4.2 (1)
Finance	33.3 (2)	16.7 (1)	0.0 (0)	0.0 (0)
Digitization/E-commerce	71.4 (5)	42.9 (3)	0.0 (0)	0.0 (0)

Note. $n = 95$. Percentages may exceed 100 because documents could have multiple classifications.

All categories except for finance had more than 50.0% of documents with reach potential. Slightly fewer documents across the categories had guidelines with benefit potential, although all were above 40.0% aside from finance, which again had the lowest number of documents (16.7%). When examining guidelines with potential to empower women or transform gender relations, the gender emphasis category had nearly twice as many documents with these guidelines compared to the second-highest (extension) category. In the finance and digitization/e-commerce categories, no documents were found to hold empower or transform potential, and no documents had empowerment potential in the category other. It is important to recognize that documents could (and often did) fit within multiple RBET designations according to their different guidelines as well as the subjective nature of the qualitative analysis.

Illustrative quotes (document text) selected from the qualitative data can help convey the types of guidelines that were coded within the RBET parameters. The quotes in Table 3 that constitute reach guidelines describe methods and recommendations to adjust development activities and opportunities to accommodate barriers that may prevent women's participation, encourage equal engagement by men and women using quotas and other measures, and pre-select activities as appropriate for women.

Table 3*Guidelines with Reach Potential*

Category	% (<i>f</i>) documents with guidelines	Illustrative quotes
Gender emphasis	85.2 (23)	The organization of training sessions needs to take into account the daily timetables of women and men, and be realistic in order to encourage participation. Providing childcare during sessions can be a major incentive in persuading women to attend (Treinen & Van der Elstraeten, 2018, p. 39).
Extension	100.0 (3)	The implementers should emphasize that both male and female members need to equally participate in the trainings. In addition, the members and their spouses should actively take part in decision-making and activity implementation throughout the SHEP training course (Japan International Cooperation Agency, 2018, p. 19)
Other (technology focus, innovation, etc.)	76.9 (10)	Women are usually responsible for harvesting water. Hence, these techniques allow women to save time that can be used instead to produce food and/or to go to school. Rainwater harvesting can, therefore, have significant benefits for women and contribute to gender equality (FAO, 2018, p. 26)
Value/Supply chain development	80.0 (12)	To improve participation of women it is important to understand their limitations to participate in activities such as their limitations to leave the households as they have to

		take care of children, cooking, household chores or not being allowed to travel alone at night (Lamers, 2021, p. 18)
Business development and marketing	75.0 (18)	Where relevant, consider smaller contributions and use quotas to ensure that there is equal participation of young women and men in the interventions (FAO & African Union Commission, 2022, p. 14)
Finance	33.3 (2)	Development of green agri-food value chains for rural and on-farm livelihoods in particular, strengthening the efficiency and inclusiveness of agri-food value chains (including for women and youth agri-entrepreneurs) represents a substantial opportunity to generate employment (FAO, 2021, p. 95).
Digitization/E-commerce	71.4 (5)	Foundational ID systems that are inclusive and strive for universal coverage can help to ensure that women are not unintentionally left out of assistance programs due to lack of identification. In addition, foundational IDs ensure that women can participate equally in social, political, and economic life. For example, providing women with a foundational ID is a first step in enabling women to register for their own SIM card, so that they can have their own mobile phone and their own mobile money wallet (or other type of financial account) (World Bank, 2018, p. 4).

We were able to extract illustrative quotes for guidelines with the potential to benefit women for all of the categories (Table 4). These guidelines describe exploring and accounting for women's perceptions (e.g., goals, needs, etc.) in the design and implementation of development initiatives. Rather than assuming what women or men should do or what would benefit them, the quotes promote gathering stakeholders' input and gender analysis of the differentiated access, control, and benefits women and men experience in unique sociocultural contexts.

Table 4

Guidelines with Benefit Potential

Category	% (f) documents with guidelines	Illustrative quotes
Gender emphasis	100.0 (27)	It is important to identify what women's goals are. Developing financial products that help meet those goals, such as commitment savings for education or convenient payment for transport services, can provide a better value proposition for female smallholders (Hernandez et al., 2018, p. 2).

Extension	100.0 (3)	Often, women have fewer entitlements and endowments than men, are less mobile and have limited access to information, making them more vulnerable to climatic shocks and low farming productivity. Possible interventions aimed at reducing this gender gap include: have a clear understanding of the local productive roles of men and women; analyse their different access to and control over productive and financial resources; increase women's access to productive land, services, inputs, markets, weather and climate information, knowledge and training; increase women's participation in decision-making processes by establishing community level bodies with their adequate representation; and analyse the effects of climate change on labour requirements of men and women in terms of household and hired labourers (FAO, 2018, p. 53).
Other (technology focus, innovation, etc.)	76.9 (10)	The water use rights system must sufficiently address the water use needs and priorities of all water users and must be designed to recognise and support the differentiated and often overlooked water use needs and priorities of women, who constitute a large percentage of smallholder farmers and the majority of domestic water users in sub-Saharan Africa (Izzi et al., 2021, p. 188).
Value/Supply chain development	73.3 (11)	These differences make delivery of extension information, such as on animal feeding or health, complicated as livestock production incentives differ among the individuals in a household. The design of technical and extension advice, materials and activities should thus take into consideration the different gendered roles and responsibilities for livestock production and marketing within households (Islamic Development Bank Group, 2020, p. 61).
Business development and marketing	50.0 (12)	Land Rights Toolkit which targets to help implementers of agricultural initiatives understand the importance of considering land rights, improve their capacity to identify land rights issues and barriers for vulnerable groups such as women in their projects, and help implementers develop solutions to address challenges that are identified (Massey et al., 2022, p. 85).
Finance	16.7 (1)	In societies where legal access to land title is denied to women or legal rights of ownership (including to livestock) do not exist, gender-specific programs, grants,

Digitization/E-commerce	42.9 (3)	or microfinance schemes within the meat protein sector that target empowerment or livelihood enhancement for women encounter barriers. Inherent obstacles can deter potential investors (public and private) and challenge policy makers when creating policies and programs that are to benefit the whole sector (World Bank, 2020, p. 78). Multiple studies have shown that having access to female extension agents resulted in greater participation and satisfaction among women farmers compared to male agents. Digital extension services (e.g., demonstration videos) customized as per the farmer's gender can help improve their uptake (United Nations Development Programme, 2021, p. 4).
-------------------------	----------	--

Three document categories (other, finance, and digitization/e-commerce) did not have documents that were analyzed as holding empowerment potential (Table 5). Across the four qualifying categories, illustrative quotes describe empowerment processes focused on decision-making at the individual, household, community, and societal levels. The guidelines discuss sources of disempowerment including safety, lack of access to resources, discrimination, and harmful norms. Awareness-raising, self-analysis in the household and community, and engaging both women and men are recommended mechanisms to support women in their empowerment.

Table 5

Guidelines with Potential to Empower Women

Category	% (f) documents with guidelines	Illustrative quotes
Gender emphasis	63.0 (17)	Gender norms, beliefs and behaviors limit women's decision-making power related to production, assets, resources, income, leadership and membership in groups, and how they spend their time. They perpetuate an imbalance of power between women and men. Therefore, to stimulate a sustainable process of empowerment, these norms, beliefs, behaviors and power relations need to change. It is important to note that both women and men internalize and perpetuate these gender norms, and both need to be targets of social and behavioral change initiatives (Stern et al., 2016, p. 16).
Extension	33.3 (1)	On the other hand, strategic gender needs – equal access to resources, elimination of discrimination and adequate participation in decision-making mechanisms – require long term commitment and changes at different levels in the society. Meeting these strategic needs is fundamental

		to advancing toward gender equality. Possible actions to address practical and strategic gender needs can blend into each other as they determine the path for developing adaptive capacities (FAO, 2018, p. 60)
Other (technology focus, innovation, etc.)	0.0 (0)	
Value/Supply chain development	20.0 (3)	Inequitable distribution of power is especially prevalent throughout the production and trade of high-value crops, which are often dominated by male actors. Household methodologies can mitigate the risk of male capture of women's high-value crops through the promotion of greater gender-balanced decision-making (IFAD, 2020, p. 15).
Business development and marketing	8.3 (2)	These include, in particular, awareness-raising within communities and households, and participatory self-analysis at both the community and the household level on the socio-economic barriers facing different social groupings (poorer members of the community, women, youth and other marginalized or vulnerable groupings). Particularly effective is the "household mentoring" methodology, which addresses intra-household gender relations (IFAD, 2021, p. 6)
Finance	0.0 (0)	
Digitization/E- commerce	0.0 (0)	

Four categories included documents with guidelines we analyzed as potentially transforming gender relations (Table 6). No documents were included from the extension, finance, and digitization/e-commerce categories. The illustrative guideline quotes describe engagement with community groups, powerholders, market actors, and institutions as catalysts to shift harmful and underlying norms and relations. The guidelines encourage community driven transformation processes through shared goals via analysis and reflection activities.

Table 6*Guidelines with Potential to Transform Gender Relations*

Category	% documents with guidelines	Illustrative quotes
Gender emphasis	66.7 (18)	Before choosing which tools to use to address gender, social, and power norms during reflective dialogues, teams must first identify the most relevant norms by engaging community groups who are most negatively impacted by these norms. Then program teams identify power holders that hold and influence these norms by conducting gender and power analysis (See Section 4 for details). Through reflective dialogues with target groups and power holders, social and gender norms are surfaced and then critically assessed for how they contribute to or undermine shared goals and desires (Mekuria et al., 2018, p. 5).
Extension	0.0 (0)	
Other (technology focus, innovation, etc.)	7.7 (1)	What can be done to show market providers (insurers and distribution channels) why it is important that women are not excluded, and to demonstrate practical solutions? – What can insurers and other sector actors supporting implementation do to be more gender inclusive within their own institutions and operating models? (IFAD, 2022, p. 3)
Value/Supply chain development	6.7 (1)	A positive step in that direction is for instance, having the dominant group (e.g. wealthy households or older men) discuss and formulate clear advantages from the inclusion of disadvantaged groups, such as greater gains in useful knowledge, skills and innovative perspectives that would be missed otherwise. Such discussions can facilitate the improved participation of excluded groups in management and decision-making. However, participation for the purpose of just achieving the agreed quota number does often not lead to real empowerment. Discussing social inclusion as a stand-alone topic could be a sensitive topic; discussing instead the matter along a practical issue at hand (assessing traditional knowledge or selecting the board members of the cooperative), would help to lesser tensions and facilitate a conducive

		discussion on social and gender inclusion. (Lamers, 2021, p. 18)
Business development and marketing	4.2 (1)	Particularly effective is the “household mentoring” methodology, which addresses intra-household gender relations. Support can also be provided for community-level and local government-level participatory development planning and multi-stakeholder dialogue processes that include the identification of land for young people. In all these processes the issues of access to land for young people is often identified as one of the barriers or challenges. Intergenerational engagement can also be linked to support in establishing public land banks, in will writing and in advocating for changes in inheritance laws, particularly in favour of young women’s tenure rights (IFAD, 2021, p. 6).
Finance	0.0 (0)	
Digitization/E-commerce	0.0 (0)	

Discussion, Implications, and Recommendations

Studies have increasingly demonstrated the need to address gender disparities related to shifts in smallholder farmers’ commercialization behaviors (Chanamoto & Hall, 2015; Rao, 2016; Tavenner et al., 2019). Our novel adaptation of the RBET framework to assess the extent of the integration of gender and women’s empowerment concepts in technical manuals, handbooks, and other readily available resources brings to light practical barriers and opportunities for promoting inclusive smallholder agricultural commercialization. We draw three central conclusions from the scoping review and qualitative analysis findings. First, simply analyzing the inclusion of words for gender or women’s empowerment in technical materials does not reveal whether gender issues are addressed in substantive ways. In contrast, comparing the gender and empowerment word counts with the qualitative exploration can illustrate the prevalence of surface level integration versus deeper, more impactful integration. Second, significant gaps were apparent in the gender integration (or lack thereof) within materials focusing on finance and digitization/e-commerce for smallholder agriculture presenting a critical area for further exploration and investment. Third, the significant discrepancies between gender integration in documents with a gender emphasis and documents in the other commercialization categories suggest gender experts and experts on other topics in smallholder agricultural commercialization often produce and share expertise in silos without effective collaboration. Because our study was limited to the review of technical materials, this third conclusion should be further investigated within practical applications such as programming and project design.

The content analysis for the word gender across the categories largely paralleled our RBET qualitative reach and benefit findings. However, the gender emphasis documents had fewer guidelines with reach potential than other categories, which is not surprising as the

guidelines were more heavily concentrated on the benefit, empower, and transform concepts of the framework. When moving from analysis of the RB side to the ET side of the RBET framework, a major drop occurred in empowerment and transform integration within documents for all categories other than gender emphasis. We believe this is largely because the empowerment and gender transformative components require more specialized expertise to understand and address due to their uniquely defined theoretical pathways and the complexities in implementing supporting approaches (Hillenbrand et al., 2015; Kabeer, 1999; McDougal et al., 2021). Our qualitative analysis helped to ensure the empowerment and transform concepts were not equated with standard gender integration or mainstreaming practices. By digging deeper into how gender transformation and empowerment were included in materials we could identify and screen when the terms were used as “buzzwords” with diluted or misconstrued meanings (Cornwall, 2010; Cornwall & Rivas, 2015; Mullinax et al., 2018).

Through the illustrative quotes, we can see the common or unique ways and the extent to which authors suggest practitioners address gender. Evident in the reach guidelines was using gender quotas to promote levels of participation by women (e.g., a 40% women attendance guideline). While a gender quota may balance demographic composition, it should not be conflated with increasing equality (Lau et al., 2021). Rather, efforts to meet a quota by persuading and encouraging people to engage can create unintended gender disparities such as additional time burdens for women with already busy lives (Deering, 2019). Similarly, practitioners and researchers should be aware of “reach dynamics” by projects, communities, and participants that may put pressure on marginalized people to engage to meet a quota or please a project (Johnson et al., 2018). Other reach guidelines accounted for unique barriers women may confront to travel to and engage in activities such as trainings, but these guidelines fell short in exploring whether women would want to participate. Benefit illustrative quotes reflected gathering and analyzing data on gender-differentiated needs and perceptions to inform the design and delivery of activities ensuring benefits to women and men, in line with good gender integration practice (Manfre et al., 2013). Empowerment guidelines often focused on the household and community levels and explicitly addressed women’s agency, strategic needs and decision-making, and collective forces for empowerment. Lastly, the guidelines for transformation described engaging with powerholders and institutions at multiple levels to shift entrenched power relations.

The lack of gender integration found in finance and digitization/e-commerce materials is a significant and concerning finding given that access to finance is critical for smallholder farmers to advance their commercialization practices (Arias et al., 2013). Smallholder men and women frequently struggle to obtain credit or loans because providers and institutions perceive that there is too high a risk lending to farmers who possess few assets and produce limited farm output (AgCLIR, 2016; Arias et al., 2013; Mpuga, 2010). Beyond a constraint for most smallholders, women in many developing contexts commonly face an even greater barrier than men in accessing and obtaining finance (Food and Agriculture Organization [FAO], 2020). Researchers have proposed that digital financial services could play a central role to bridge the financial inclusion gap through improving smallholder women’s direct access to information (Adegbite & Machethe, 2020). Yet, we found no meaningful integration of women’s empowerment and gender transformative concepts in the finance and digitization/e-commerce focused documents and the lowest levels of reach and benefit integration. Furthermore, these two categories had more gender blind documents than the other categories. While our sample from a five-year window was relatively small, we recommend future research in response to these

findings to analyze gender integration across more materials, including project/program proposals and designs, to determine the prevalence of this gender gap in technical guidance. Going forward, new documents in these areas could be improved by incorporating guidelines about women's economic empowerment, focusing on increasing women's agency and economic rights along with potentially transformative activities like working with financial institutions to reduce gender bias in formal and informal structures (Golla et al., 2011; Kidder et al., 2017; Hillenbrand et al., 2015). For these guidelines to be both practical and effective, we recommend engaging stakeholders and conducting research to explore positive examples (and anomalies) that demonstrate ways financial institutions and service providers can break down gender barriers to access and utilization. Furthermore, gender focused technology assessments should be conducted, especially for digital and e-commerce innovations, to examine gender differentiated needs, perceptions, and experiences related to these technologies (Manfre et al., 2017).

Our third conclusion — although somewhat expected — presents significant implications for the prospects of improving the integration of gender and women's empowerment in smallholder agricultural commercialization. The vast differences between the inclusion of empowerment and transformative change concepts in the gender emphasis documents (including gender expert documents) compared to the other categories suggest a lack of gender prioritization and/or expertise that went into the development of documents focused in areas like finance and business development. Of course, there is rationale for concentrating expertise to produce specialized and in-depth materials (e.g., a gender transformation facilitation guide). And, ironically, we did not explore how meaningfully finance and digitization were integrated in the gender emphasis documents. However, it should be recognized that zero integration of gender was observed in many documents and even more documents omitted empowerment and transformation concepts. We believe this absence of guidance could translate to practitioners not even using basic gender aware practices. Therefore, we recommend further exploring potential “siloeing” of gender and technical smallholder agricultural expertise as well as addressing this issue via opportunities to increase meaningful expert collaborations. For example, collaborations at a basic level could include reviews of technical materials by gender specialists and vice versa by market and financial specialists. For fuller, more meaningful integration, we encourage gender and smallholder technical specialists co-designing and developing shared visions and objectives. Notably, we found limited integration of empowerment in the extension category and empowerment and transformation in the value/supply chain development category. Exploring resources on gender in value chains and integration of gender within extension may provide models as a starting point to promote integration elsewhere (e.g., Manfre et al., 2013; Reemer & Mkanza, 2014).

We believe the overarching answer to our research question is that the extent of gender integration, beyond simply mentioning terms, was low across most types of technical resources, other than integration concentrated within materials tailored to focus on gender. It could be argued that a study limitation was excluding select monitoring and evaluation guidance (especially guidance focused on participatory, culturally responsive, and developmental frameworks as these merge implementation with measurement). An additional limitation of this study was not surveying a range of smallholder agriculture-focused practitioners about the types of documents they would reference for facilitating smallholder commercialization activities to ensure our sample was appropriate. Nonetheless, our operationalization of “readily available” as documents a practitioner could search for and find online along with our research team's knowledge from working in real-world smallholder settings helped address this limitation.

Comparing our findings with a diverse sample of practitioners to assess their knowledge and skillsets would help infer whether the gaps in gender and women's empowerment guidelines parallel gaps in practitioners' expertise that may most directly influence outcomes for women and men farmers in communities and the field.

References

- Adegbite, O. O., & Machethe, C. L. (2020). Bridging the financial inclusion gender gap in smallholder agriculture in Nigeria: An untapped potential for sustainable development. *World Development*, 127. <https://doi.org/10.1016/j.worlddev.2019.104755>
- AgCLIR. (2016). *Sierra Leone final report*. International Development Group LLC.
- Arias, P., Hallam, D., Krivonos, E., & Morrison J. (2013). *Smallholder integration in changing food markets*. Food and Agriculture Organization of the United Nations. <http://www.fao.org/3/i3292e/i3292e.pdf>
- Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, 8(1), 19–32. <https://doi.org/10.1080/1364557032000119616>
- Boogaard, B. K., Waithanji, E., Poole, E. J., & Cadilhon, J. J. (2015). Smallholder goat production and marketing: A gendered baseline study from Inhassoro District Mozambique. *NJAS-Wageningen Journal of Life Sciences*, 74, 51–63. <https://doi.org/10.1016/j.njas.2015.09.002>
- Chanamuto, N. J., & Hall, S. J. (2015). Gender equality, resilience to climate change, and the design of livestock projects for rural livelihoods. *Gender & Development*, 23(3), 515–530. <https://doi.org/10.1080/13552074.2015.1096041>
- Cohen, M. J., & Lemma, M. (2011). *Agricultural extension services and gender equality*. International Food Policy Research Institute. <https://ideas.repec.org/p/fpr/ifprid/1094.html>
- Cornwall, A., & Rivas, A. M. (2015). From 'gender equality and 'women's empowerment' to global justice: reclaiming a transformative agenda for gender and development. *Third World Quarterly*, 36(2), 396–415. <https://doi.org/10.1080/01436597.2015.1013341>
- Cornwall, A. (2010). Introductory overview—Buzzwords and fuzzwords: Deconstructing development discourse. In A. Cornwall & D. Eade (Eds.). *Buzzwords and Fuzzwords*. Practical Action Publishing.
- Cornwall, A. (2016). Women's empowerment: What works? *Journal of International Development*, 28, 342–359. <https://doi.org/10.1002/jid.3210>
- Cunningham, K., Ruel, M., Ferguson, E., & Uauy, R. (2015). Women's empowerment and child nutritional status in South Asia: A synthesis of the literature. *Maternal & Child Nutrition*, 11(1), 1–19. <https://doi.org/10.1111/mcn.12125>

- Deering, K. (2019). *Gender-transformative adaptation: From good practice to better policy*. CARE International. https://careclimatechange.org/wp-content/uploads/2019/06/Gender-Transformative-Adaptation_Publication_FINAL.pdf
- Djurfeldt, A. A., Cuthbert Isinika, A., & Mawunyo Dzanku, F. (2018). *Agriculture, diversification, and gender in rural Africa: longitudinal perspectives from six countries* (p. 288). Oxford University Press.
- Doss, C., Meinzen-Dick, R., Quisumbing, A., & Theis, S. (2018). Women in agriculture: Four myths. *Global Food Security*, 16, 69–74. <https://doi.org/10.1016/j.gfs.2017.10.001>
- Farnworth, C. (2011). *Gender-aware value chain development* (Expert paper prepared for UN Women). UN Women. <https://www.un.org/womenwatch/daw/csw/csw56/egm/Farnworth-EP-1-EGM-RW-Sep-2011.pdf>
- Food and Agriculture Organization of the United Nations. (2020). *Deconstructing the gender gap in rural financial inclusion – The cases of Mozambique and Tanzania*. <https://doi.org/10.4060/cb0569en>
- Gale, R. C., Wu, J., Erhardt, T., Bounthavong, M., Reardon, C. M., Damschroder, L. J., & Midboe, A. M. (2019). Comparison of rapid vs in-depth qualitative analytic methods from a process evaluation of academic detailing in the Veterans Health Administration. *Implementation Science*, 14(1), 1–12. <https://doi.org/10.1186/s13012-019-0853-y>
- Gates, M. F. (2014). Putting women and girls at the center of development. *Science*, 345(6202), 1273–1275. <https://doi.org/10.1126/science.1258882>
- Golla, A. M., Malhotra, A., Nanda, P., & Mehra, R. (2011). *Understanding and measuring women's economic empowerment*. International Center for Research on Women. <https://www.icrw.org/wp-content/uploads/2016/10/Understanding-measuring-womens-economic-empowerment.pdf>
- Goodman, R. & Kaplan, S. (2017). Holding up the sky: achieving women's empowerment requires working with women and men: Involving men in women's economic development projects can lead to higher impact for women and changes in gender norms. *Stanford Social Innovation Review*. https://ssir.org/articles/entry/holding_up_the_sky_achieving_womens_empowerment_requires_working_with_women
- Head, S. K., Zweimueller, S., Marchena, C., & Hoel, E. (2014). *Women's lives and challenges: Equality and empowerment since 2000*. ICF International. <https://www.usaid.gov/sites/default/files/documents/1864/WomensLivesandChallengesEqualityandEmpowerment.pdf>
- Heumesser, C., & Kray, H. A. (2019). *Productive diversification in African agriculture and its effects on resilience and nutrition*. World Bank.

- <https://documents1.worldbank.org/curated/en/942331530525570280/pdf/Productive-Diversification-in-African-Agriculture-and-its-Effects-on-Resilience-and-Nutrition.pdf>
- Hillenbrand, E., Karim, N., Mohanraj, P., & Wu, D. (2015). *Measuring gender-transformative change: A review of literature and promising practices*. WorldFish.
https://www.fsnnetwork.org/sites/default/files/working_paper_aas_gt_change_measurement_fa_lowres.pdf
- Huss-Ashmore, R. (1996). Livestock, nutrition, and intrahousehold resource control in Uasin Gishu District, Kenya. *Human Ecology*, 24(2), 191–213.
<https://link.springer.com/content/pdf/10.1007/BF02169126.pdf>
- Huyer, S. (2016). Closing the gender gap in agriculture. *Gender, Technology and Development*, 20(2), 105–116. <https://doi.org/10.1177%2F0971852416643872>
- Interagency Gender Working Group. (2017). *The gender integration continuum: Training session user's guide*. United States Agency for International Development.
https://www.igwg.org/wp-content/uploads/2017/12/17-418-GenderContTraining-2017-12-12-1633_FINAL.pdf
- Johnson, N., Balagamwala, M., Pinkstaff, C., Theis, S., Meinsen-Dick, R., & Agnes, Q. (2018). How do agricultural development projects empower women? Linking strategies with expected outcomes. *Journal of Gender, Agriculture and Food Security*, 3(2), 1–19.
<http://dx.doi.org/10.22004/ag.econ.293596>
- Kaaria, S. K. & Ashby, J. A. (2001). *An approach to technological innovation that benefits rural women: The resource-to-consumption system* (Working Document No.13). CGIAR Systemwide Program on Participatory Research and Gender Analysis.
<https://hdl.handle.net/10568/69999>
- Kabeer, N. (1999). Resources, agency, achievements: Reflections on the measurement of women's empowerment. *Development and Change*, 30(3), 435–464.
<https://doi.org/10.1111/1467-7660.00125>
- Kabeer, N. (2010). Women's empowerment, development interventions and the management of information flows. *ids Bulletin*, 41(6), 105–113. <https://doi.org/10.1111/j.1759-5436.2010.00188.x>
- Kidder, T., Romana, S., Canepa, C., Chettleborough, J., & Molina, C. (2017). *Oxfam's conceptual framework on women's economic empowerment*. Oxfam.
<https://oxfamlibrary.openrepository.com/bitstream/10546/620269/7/gt-framework-womens-economic-empowerment-180118-en.pdf>
- Kilic, T., Moylan, H., & Koolwal, G. (2021). Getting the (gender-disaggregated) lay of the land: Impact of survey respondent selection on measuring land ownership and rights. *World Development*, 146, 105545. <https://doi.org/10.1016/j.worlddev.2021.105545>

- Kleiber D., Cohen, P., Gomese, C., & McDougall, C. (2019). *Gender-integrated research for development in Pacific coastal fisheries* (Program Brief: FISH-2019-02). CGIAR Research Program on Fish Agri-Food Systems. <https://digitalarchive.worldfishcenter.org/bitstream/handle/20.500.12348/2826/FISH-2019-02.pdf>
- Lau, J. D., Kleiber, D., Lawless, S., & Cohen, P. J. (2021). Gender equality in climate policy and practice hindered by assumptions. *Nature Climate Change*, 11(3), 186–192. <https://doi.org/10.1038/s41558-021-00999-7>
- Lewinski, A. A., Crowley, M. J., Miller, C., Bosworth, H. B., Jackson, G. L., Steinhäuser, K., ... & Zullig, L. L. (2021). Applied rapid qualitative analysis to develop a contextually appropriate intervention and increase the likelihood of uptake. *Medical Care*, 59. <https://doi.org/10.1097%2FMLR.0000000000001553>
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic inquiry*. Sage Publications.
- Lomuscio, S. (2021). *Getting started with the Kruskal-Wallis test*. University of Virginia Research Data Services + Sciences. <https://data.library.virginia.edu/getting-started-with-the-kruskal-wallis-test/>
- Malapit, H. J. L., & Quisumbing, A. R. (2015). What dimensions of women's empowerment in agriculture matter for nutrition in Ghana?. *Food Policy*, 52, 54–63. <https://doi.org/10.1016/j.foodpol.2015.02.003>
- Manfre, C., D. Rubin, A. Allen, Summerfield, G. Colverson, K. & Akeredolu, M. (2013). *Reducing the gender gap in agricultural extension and advisory services: How to find the best fit for men and women farmers*. Modernizing Extension Advisory Services Project. <https://meas.illinois.edu/wp-content/uploads/2017/02/Manfre-et-al-2013-Gender-and-Extension-MEAS-Brief.pdf>
- Manfre, C., Rubin, D. & Nordehn, C. (2017). *Assessing how agricultural technologies can change gender dynamics and food security outcomes*. Integrating Gender and Nutrition within Agricultural Extension Services. https://ingenaes.illinois.edu/wp-content/uploads/Part-One-Learn-Final-10_17.pdf
- Masamha, B., Uzokwe, V. N., & Thebe, V. (2018). Women's empowerment in traditional food value chains at the micro-level: Evidence from cassava smallholder farming in Tanzania. *Agroecology and Sustainable Food Systems*, 42(1), 28–47. <https://doi.org/10.1080/21683565.2017.1325433>
- McDougall, C. (2021, October 12-15). *Gender transformative approaches for food systems transformation: new Methodological insights* [Conference session]. Cultivating Equality Conference. <https://hdl.handle.net/10568/117208>
- McDougall, C., Cole, S. M., Rajaratnam, S., Brown, J., Choudhury, A., Kato-Wallace, J., ... Teioli, H. (2015). Implementing a gender transformative research approach: Early lessons. In B. Douthwaite, J. M. Apgar, A. Schwarz, C. McDougall, S. Attwood, S.

- Senaratna Sellamuttu, & T. Clayton (Eds.), *Research in development: Learning from the CGIAR Research Program on Aquatic Agricultural Systems* (pp. 41–56). Research Program on Aquatic Agricultural Systems. <https://hdl.handle.net/10568/75552>
- Meinzen-Dick, R. S., Rubin, D., Elias, M., Mulema, A. A., & Myers, E. (2019). *Women's empowerment in agriculture: Lessons from qualitative research* (Vol. 1797). International Food Policy Research Institute. <https://doi.org/10.2499/p15738coll2.133060>
- Molina-Maturano, J., Speelman, S., & De Steur, H. (2020). Constraint-based innovations in agriculture and sustainable development: A scoping review. *Journal of Cleaner Production*, 246, 119001. <https://doi.org/10.1016/j.jclepro.2019.119001>
- Moosa, C. S., & Tuana, N. (2014). Mapping a research agenda concerning gender and climate change: A review of the literature. *Hypatia*, 29(3), 677–694. <https://doi.org/10.1111/hypa.12085>
- Mpuga, P. (2010). Constraints in access to and demand for rural credit: Evidence from Uganda. *African Development Review*, 22(1), 115–148. <https://doi.org/10.1111/j.1467-8268.2009.00230.x>
- Mullinax, M., Hart, J., & Garcia, A. V. (2018). *Using research for gender-transformative change: Principles and practice*. International Development Research Center and American Jewish World Service. <https://ajws.org/wp-content/uploads/2019/05/Gender-Transformative-Research.pdf>
- Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC medical research methodology*, 18(1), 1–7. <https://doi.org/10.1186/s12874-018-0611-x>
- Njuki, J., Eissler, S., Malapit, H. J., Meinzen-Dick, R. S., Bryan, E., & Quisumbing, A. R. (2021). *A review of evidence on gender equality, women's empowerment, and food systems*. International Food Policy Research Institute. https://bonndoc.ulb.uni-bonn.de/xmlui/bitstream/handle/20.500.11811/9132/fss_briefs_review_evidence_gender_equality.pdf?sequence=3&isAllowed=y
- Njuki, J., Kaaria, S., Chamunorwa, A., & Chiuri, W. (2011). Linking smallholder farmers to markets, gender and intra-household dynamics: Does the choice of commodity matter?. *The European Journal of Development Research*, 23(3), 426–443. <https://doi.org/10.1057/ejdr.2011.8>
- Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., & Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *JBIM Evidence Implementation*, 13(3), 141–146. <https://doi.org/10.1097/XEB.0000000000000050>
- Pingali, P. L., & Rosegrant, M. W. (1995). Agricultural commercialization and diversification: Processes and policies. *Food Policy*, 20(3), 171–185. [https://doi.org/10.1016/0306-9192\(95\)00012-4](https://doi.org/10.1016/0306-9192(95)00012-4)

- Rao, N. (2017). Assets, agency and legitimacy: Towards a relational understanding of gender equality policy and practice. *World Development*, 95, 43–54.
<https://doi.org/10.1016/j.worlddev.2017.02.018>
- Rao, S. (2016). *Indicators of gendered control over agricultural resources: A guide for agricultural policy and research* (Working Paper No. 1.). CGIAR Gender and Agriculture Research Network. CGIAR Consortium Office and International Center for Tropical Agriculture.
- Reemer, T. & Makanza, M. (2014). *Gender action learning system*. Deutsche Gesellschaft für Internationale Zusammenarbeit.
https://www.oxfamnovib.nl/Redactie/Downloads/English/publications/150115_Practical%20guide%20GALS%20summary%20Phase%201-2%20lr.pdf
- Sokoni, C. H. (2008). Commercialisation of smallholder production in Tanzania: Implications for sustainable resources management. *The Geographical Journal*, 174(2), 158–161.
<https://www.jstor.org/stable/40205213>
- Sucharew, H., & Macaluso, M. (2019). Progress notes: Methods for research evidence synthesis: the scoping review approach. *Journal of Hospital Medicine*, 14(7), 416–418.
<https://doi.org/10.12788/jhm.3248>
- Sulaiman, R.V., & Davis, K. (2012). *The new extensionist: Roles, strategies, and capacities to strengthen extension and advisory services*. Global Forum for Rural Advisory Services.
<https://www.g-fras.org/en/knowledge/gfras-publications.html?download=126:the-new-extensionist-position-paper>
- Tavener, K., van Wijk, M., Fraval, S., Hammond, J., Baltenweck, I., Teufel, N., Kihoro, E., de Haan, N., van Etten, J., Steinke, J., Baines, D., Carpena, P., Skirrow, T., Rosenstock, T., Lamanna, Ng'endo, M., Chesterman, C., Namoi, N., Manda, L. (2019). Intensifying inequality? Gendered trends in commercializing and diversifying smallholder farming systems in East Africa. *Frontiers in Sustainable Food Systems*, 3.
<https://doi.org/10.3389/fsufs.2019.00010>
- Von Braun, J., Bouis, H., & Kennedy, E. (1994). Conceptual framework. In J. Von Braun, & E. Kennedy (Eds.), *Agricultural commercialization, economic development, and nutrition* (pp. 11–36). The Johns Hopkins Press.

