



GENDER Impact
Platform

CGIAR GENDER Impact Platform · Working Paper #021

AUGUST 2024

Scoping review on gender-disaggregated data in climate-smart agriculture

By Peter Wright, Karl Deering, Abinet Tasew, Emma Smith,
Maureen Miruka, Pranati Mohanraj, Henry Swira



This publication is copyrighted by the International Livestock Research Institute (ILRI). It is licensed for use under the Creative Commons Attribution 4.0 International License. To view this license, visit <https://creativecommons.org/licenses/by/4.0>.



Unless otherwise noted, you are free to share (copy and redistribute the material in any medium or format) and adapt (remix, transform and build upon the material) for any purpose, even commercially, under the following conditions:

ⓘ ATTRIBUTION. This work must be attributed when used in other works, but not in any way that suggests endorsement of those works by ILRI or the author(s).

ISBN: 92-9146-822-3

Citation: Wright, Peter, Karl Deering, Abinet Tasew, Emma Smith, Maureen Miruka, Pranati Mohanraj and Henry Swira. 2024. *Scoping review on gender-disaggregated data in climate-smart agriculture*. CGIAR GENDER Impact Platform Working Paper #021. Nairobi, Kenya: CGIAR GENDER Impact Platform.

ACKNOWLEDGMENTS

This scoping review is the result of a fruitful collaboration between Peter Wright, Karl Deering, Maureen Miruka, Henry Swira, Abinet Tasew, Pranati Mohanraj and Emma Smith from CARE; and Ranjitha Puskur, Avni Mishra, Chandana Rajasekharan Bindu and Abiyot Anbacha from IRRI. We would like to extend appreciation to Patience Mgoli Mwale, Faith Owuor, Abebaw Kebede, and Opper Maravanyika from CARE for their valuable contribution as reviewers of key documents used for this scoping review. This work was carried out under the CGIAR GENDER Impact Platform. The CGIAR GENDER Impact Platform is grateful for the support of CGIAR Trust Fund contributors: www.cgiar.org/funders.

COVER PHOTO CREDIT: The first time Jean and his wife Triphene started growing orange-flesh sweet potato vines, they earned 100,000 Rwandan francs (US\$76) and bought a cow. They now earn enough to pay for local medical insurance. Credit: Hugh Rutherford/International Potato Center.

ABOUT CGIAR GENDER IMPACT PLATFORM

Generating Evidence and New Directions for Equitable Results (GENDER) is CGIAR's impact platform designed to put equality and inclusion at the forefront of global agricultural research for development. The Platform is transforming the way gender research is done, both within and beyond CGIAR, to kick-start a process of genuine change toward greater gender equality and better lives for smallholder farmers everywhere. gender.cgiar.org

DISCLAIMER

This working paper has been internally peer-reviewed and the opinions expressed herein reflect those of the authors, not necessarily those of the CGIAR GENDER Impact Platform.

CONTACT

Peter Wright
Senior Technical Advisor, Climate Resilient Agriculture
CARE
Niamey, Niger
Email: Peter.Wright@care.org

CGIAR GENDER Impact Platform Working Paper #021

AUGUST 2024

Scoping review on gender-disaggregated data in climate-smart agriculture

Peter Wright

CARE

Peter.Wright@care.org

Emma Smith

CARE

Emma.Smith@care.org

Karl Deering

CARE

Karl.Deering@care.org

Maureen Miruka

CARE

Maureen.Miruka@care.org

Abinet Tasew

CARE

Abinet.Tasew@care.org

Pranati Mohanraj

CARE

Pranati.Mohanraj@care.org

Henry Swira

CARE

Henry.Swira@care.org

TABLE OF CONTENTS

Executive summary	1
1. Introduction	3
<i>1.1 Background</i>	3
<i>1.2 Rationale for this review</i>	3
2. Methodology	4
<i>2.1 Desk review</i>	4
<i>2.2 Key informant interviews</i>	4
3. Evolution of gender and gender-disaggregated data in CSA	5
4. Synthesis of findings from key informant interviews	8
<i>4.1 Extent of experience in gender integration in CSA programming</i>	8
<i>4.2 Gaps in monitoring, evaluation and learning systems for collecting relevant data</i>	10
<i>4.3 Gaps in data analysis and use from a gender, inclusion and intersectionality perspective</i>	11
<i>4.4 Summary</i>	12
5. Discussion	13
6. Limitations	14
7. Conclusions	15
8. Recommendations	16
<i>8.1 CSA program analysis and design</i>	16
<i>8.2 Program implementation</i>	16
<i>8.3 Monitoring and evaluation</i>	17
References	18
Appendix 1. Detailed findings from key informant interviews	21
Appendix 2. Key informant interview guide	29

Executive summary

The focus of this scoping review is to understand the extent gender-disaggregated data are available in climate-smart agriculture (CSA) programming, identify gaps in the collection and analysis of this data, and suggest ways to bridge those gaps to reduce gender inequalities that may prevent women and girls from benefiting from CSA programming. The methodology involves a qualitative approach that uses a desk review of selected literature and key informant interviews. To identify relevant literature, CARE used key words to conduct a text search that included peer-reviewed and published literature, gray literature, official data sets and sources and other qualitative evidence. The key informant interviews included a convenience sample of 11 key informants representing multilateral agencies, an international nongovernment organization program, a local nongovernment organization (NGO) program, government programs, a national agricultural research institute, an international research institute, and a private sector program. The key informant interviews were conducted to address several objectives, including assessing gaps in collecting, analyzing, and using disaggregated data for gender, social, economic and demographic intersectional variables in CSA programming; identifying indicators and tools used to measure project outcomes and impacts; and understanding the periodicity of data collection and people involved in such data collection.

The CSA framework has three primary objectives: production, resilience and mitigation. Gender equality, social inclusion and other equity-oriented objectives are not included in these three objectives. Gender was retrospectively included as something that should be “mainstreamed” in the pursuit of the three primary objectives. The Food and Agriculture Organization’s (FAO) seminal paper on CSA in 2010 did not address gender, gender equality or equity. As a result, there are no tools, methods or metrics that address gender equality in the paper. The weakness of the CSA framework has become more apparent over time, and the discourse and practice on gender in agriculture has progressed from sensitivity and mainstreaming toward responsiveness and eventually transformation. However, there has been no commitment to specific actions and measurement systems that would track progress, illustrating the lack of expectation and ambition for advancing gender equality within CSA.

The key informant interviews indicated that some organizations were more intentional about integrating gender into all aspects of the project cycle, including design, implementation and monitoring and evaluation, while others mainly focused on collecting gender-disaggregated data during monitoring and evaluation. Some organizations also collected, analyzed and used gender-disaggregated impact data to better understand the gendered impacts of adopting CSA practices and technologies. Several organizations also collected data disaggregated by age and some considered age as a factor when designing and implementing programming. Only a few organizations focused on other marginalized groups, such as ethnic minority groups or people with disabilities.

The key informant interviews revealed several positive trends in the collection and use of gender and intersectional disaggregated data within the context of CSA. These trends include the use of diagnostic and facilitation tools, the use of Women’s Empowerment in Agriculture Index (WEAI), Abbreviated Women’s Empowerment in Agriculture Index (A-WEAI), and Project-level Women’s Empowerment in Agriculture Index (pro-WEAI), and the digitalization of data collection. Diagnostic and facilitation tools are being used to develop projects and workplans that rely on inclusive approaches and qualitative data to co-create, implement and monitor action plans that may be specific to CSA practices or address larger issues such as sustainable value chains, in which CSA is a component. The use of WEAI (including A-WEAI and pro-WEAI variants) as a standardized source of impact evidence may facilitate comparisons across socioeconomic contexts and implementation strategies to

increase knowledge of what works and what does not. The digitalization of data collection can reduce costs, time and errors in what is otherwise a meticulous and time-consuming process. It can also facilitate community-based monitoring in both near real-time and over longer timeframes, contributing to the medium- to longer-term transformative potential of gender and intersectional disaggregated data collection.

However, a limited focus on binary gender dynamics and antiquated gender-sensitive approaches based on participation, ignoring the fundamental issues of power dynamics and social and political relations and norms as root causes of gender inequalities, has led to significant and interconnected gaps in the collection and use of disaggregated gender and intersectional data to assess the benefits, costs and impacts of CSA on women and other vulnerable groups, and vice versa. These gaps include:

- lack of intention and high-level commitment to seek gender equality and social-inclusion outcomes in CSA and, by extension, to achieve the UN Sustainable Development Goal 5 (Achieve gender equality and empower all women and girls)
- lack of central and clear guidance on impacts and indicators. Notwithstanding cases where adoption or knowledge are considered proxies for adaptive capacities, the emphasis on participation and adoption falls short of measuring impact
- inadequate resources at all levels—donors allocate resources and project cycles according to their priorities (or those of their constituencies), which often center on short-term objectives of reach and participation than on long-term impacts
- inadequate training and staffing at the project level—key informants noted a lack of staff with gender-integration mandates
- limited use of intersectional data for impact analysis that does not seem to have contributed to outcomes assessment or impact analysis.

To help bridge these gaps, the review suggests creating an alliance of organizations to advocate for greater leadership from key international and regional institutions to mandate integrating gender equality and social inclusion across all pillars in CSA programming, adopting cost-efficient impact measurement protocols, creating longer time horizons for data collection, and optimizing the allocation of funding and expertise by prioritizing (i) disaggregated impact data collection and analysis at the program level and (ii) disaggregated reach, participation and adoption data collection and analysis at the project level. The review recommends more guidance on integrating climate-risk analysis and climate information for producers' decision-making, including indicators. The review also recommends ensuring adequate gender and technical expertise to implement gender-transformative approaches in CSA projects and maximize the impacts of CSA programming on women's empowerment and gender equality. The review suggests promoting social analysis and action (SAA) and the use of gender analyses and gender-sensitive climate vulnerability and capacity analyses (CVCA) to capture gender-related data on CSA to improve programming. The review recommends developing guidance on how to move beyond monitoring participation and adoption to evaluate the impacts of interventions and practices on women and other vulnerable groups using disaggregated and, possibly, intersectional data collection and analysis. The review suggests using data collected throughout program implementation to inform present and future programming with a better understanding of what is working well, what needs to be improved and what is having an impact. The review also suggests collecting and analyzing disaggregated impact-level and reach data to better understand the impacts that can be directly attributed to women and develop and implement simplified metrics and systems for community monitoring of gender equality and social inclusion in CSA implementation.

Keywords: *climate-smart agriculture, data collection, gender equality, social inclusion, social analysis, gender statistics*

1. Introduction

1.1 Background

The International Panel on Climate Change projects that up to 183 million people will be food insecure by 2050 due to the effects of climate change (Mbow et al. 2019). The World Health Organization (WHO) conservatively estimates that between 2030 and 2050 climate change is expected to cause approximately 250,000 deaths per year resulting from malnutrition, malaria, diarrhea and heat stress alone (WHO 2021). Women and girls often face the most severe impacts of food insecurity caused by climate change, often eating last and least. CARE's analysis has estimated that 150 million more women were hungry than men in 2021 (CARE 2022). This situation is expected to worsen as a result of the combination of climate change, conflict and COVID-19-related stresses on global food security. The need for strengthened resilience and increased capacities to adapt for the poorest and most vulnerable, especially women and girls, means that integrated systemic solutions are imperative to respond to growing food insecurity due to climate change.

Agricultural growth is an effective way to reduce poverty and increase food and nutrition security in low-income economies that rely heavily on agriculture, leading to a need for increased investment in agriculture that is resilient to climate change (FAO et al. 2012). Climate-smart agriculture (CSA) was devised as a strategy to increase resilience and sustainability. The CSA framework, as originally defined, is comprised of three objectives or pillars: (i) to sustainably improve agricultural productivity and enhance food security, (ii) increase farmers' resilience and adaptation to climate change, and (iii) reduce or remove greenhouse gas emissions, where possible (FAO 2013; FAO and CARE 2019). Gender equality was not prioritized in the development of CSA approaches, which may explain lack of investment in gender-equality work within CSA programming. As a result, CSA work frequently neglects gender-related concerns (Anderson and Sriram 2019) and international agriculture research and development organizations have struggled to find effective ways to integrate gender-equality dimensions into the processes and outcomes of agricultural programs.

1.2 Rationale for this review

Without emphasizing data disaggregated by intersectional variables, including gender, social, economic and demographic variables, there is a risk of exclusion, discrimination or bias against "invisible populations" and support that is not needs- or rights-based. An evidence-based approach that collects, analyzes, and uses disaggregated data is needed for increased impartiality and promotion of equity and equality within programming. The purpose of this review is to understand the extent disaggregated data variables are available in CSA programming to highlight the existing gaps in disaggregated data in CSA programs, and to make recommendations about how these gaps can be bridged to reduce gender inequalities that may prevent women and girls from benefiting from CSA programming and from actively benefiting in food systems.

2. Methodology

The scoping review adopted a qualitative approach, using key informant interviews to provide a sample of the current situation, supplemented by an in-depth desk review of literature to provide insights into the evolution of the CSA–gender nexus over time.

2.1 Desk review

CARE identified literature by doing a key-word search in the Google search engine. The key words used included a combination of the words “gender,” “CSA” and “gender-disaggregated data.” Literature included peer-reviewed and published literature, gray literature and other qualitative evidence and sources. The findings from the desk review are summarized as an explanatory text on the CSA–gender nexus in [section 4](#).

2.2 Key informant interviews

To explore the experiences of different development organizations in CSA programming, CARE included a range of sources, drawing from different development organizations and institutions through a convenience sampling technique, identifying key informants within organizations and institutions. The key informants represented multilateral agencies, an international NGO program, a local NGO program, government programs, a national agricultural research institute, an international research institute, and a private sector program, working across Eastern Africa and South Asia and Southeast Asia.¹ A total of 11 key informants, (including four women), were interviewed for this scoping review, including monitoring, evaluation and learning leads, managers, directors, researchers and technical staff. An interview guide was used to standardize questions and guide the discussions (see [Appendix 1](#) for key informant interview details and [Appendix 2](#) for the interview questions). Conversations were held over Zoom, typically lasting for about an hour. The key informant interviews were conducted to:

- analyze existing gaps in collecting, analyzing and using disaggregated data for gender, social, economic and demographic intersectional variables in CSA programming for people’s participation in climate-change adaptation and mitigation activities, access to information and CSA approaches and technologies, adoption of CSA practices and technologies, and the impacts of CSA approaches and technologies
- identify the indicators used to measure the projects’ and programs’ outcomes and impacts
- identify types of tools used to collect data on the projects’ and programs’ outcomes and impacts
- understand the periodicity of data collection and the gender and expertise of people involved in data collection

¹ These organizations included the Institute for Agriculture and the Environment within the Viet Nam Ministry of Agriculture and Rural Development, the CARE International Climate Justice Center, the Food and Agriculture Organization of the United Nations, the International Food Policy Research Institute, the Joint Effort to Save the Environment, the Kenyan Ministry of Agriculture, PepsiCo, the Tanzania Agriculture Research Institute, and the International Finance Corporation of the World Bank.

3. Evolution of gender and gender-disaggregated data in CSA

If metrics are included in program design, and if investments are made to deliver progress against these metrics, then positive impacts should follow. However, gender equality, social inclusion or any other equity-oriented objective is not currently, and was not initially, included in the three objectives (pillars) of the CSA framework. Instead, gender was retrospectively included as a component that should be mainstreamed to achieve the three primary objectives: production, resilience and mitigation. Notably, the FAO seminal paper on CSA does not address gender, gender equality or equity (FAO 2010). Therefore, when trying to understand measurement, there is no reference to tools, methods or metrics that address gender equality in the paper. This paper and other early work (CCAFS and FAO 2014) that neglected gender, meant that the CSA framework was a missed opportunity for advancing Sustainable Development Goal 5 (Achieve gender equality and empower all women and girls) within climate change and agriculture programming.

Even though gender equality was not an explicit objective across the pillars, FAO cites CSA as supporting the FAO Strategic Framework 2022–2031 based on the Four Betters: better production, better nutrition, a better environment, and a better life for all, leaving no one behind. FAO recommends CSA is implemented through five action points: expanding the evidence base for CSA, supporting enabling policy frameworks, strengthening national and local institutions, enhancing funding and financing options, and implementing CSA practices at the field level.²

Gender is integrated in the “enabling policy frameworks” action point, and equality and gender equality are implicit in commitments to “leaving no one behind.” Within these five action points, the need for an improved evidence base offers an opportunity for all actors to ensure gender-related data is captured, analyzed and used to inform decision-making and investments.

With attention to the CSA framework increasing from both supporters and critics, due in part to slow progress in addressing agriculture within negotiations under the United Nations Framework Convention on Climate Change, the framework’s weaknesses became more exposed. Academics, NGOs and other institutions began efforts to address gaps in both the discourse and practice around gender and social inclusion within CSA and this led to improvements in how gender equality was addressed in design and implementation (Bernier et al. 2013; Perch and Byrd 2015; Nelson and Huyer 2016; Collins 2018; Bryan et al. 2017).

However, successive technical and policy papers on CSA continued to either ignore (Neufeldt et al. 2013; Harvey et al. 2014; Campbell et al. 2014; Mwongera et al. 2019) or undervalue the importance of gender equality as an outcome to be pursued, or at least an issue to be addressed in design, implementation or policy development. In many technical papers, the treatment of gender in relation to CSA was, and to some extent still remains, limited to the uptake or adoption of CSA technologies or practices. This limited treatment of gender, unfortunately, followed traditional approaches to action on, and measurement of, gender equality and social inclusion in agriculture, that is only examining the extent to which women or men adopt a particular technology.

Although commitments to measuring progress did not immediately emerge, there has been advancements in research and practices with the publication of papers at least addressing gender in the context of climate change and agriculture (Chaudhury et al. 2012; Jost et al.

² For FAO’s climate-smart agriculture information, see <https://www.fao.org/climate-smart-agriculture/en/>

2014; Steenwerth et al. 2014). Eventually, due to an obvious need, a module was developed on “Gender in Climate-Smart Agriculture” in the *Gender in Agriculture Sourcebook* (World Bank et al. 2015a) and a module on the “Role of Gender in Climate-Smart Agriculture” in the *Climate-Smart Agriculture Sourcebook* (World Bank et al. 2015b) were developed. These papers provided guidance on indicators and metrics on CSA and gender, including practices adopted by individual women and men; gendered access to credit, agricultural technology or other inputs; women’s labor status and legal rights; gendered land ownership; access to climate services, gender and social norms; and other factors that influence women and men farmers’ livelihood strategies. These modules stress that participatory approaches to vulnerability assessment generate a richer understanding of CSA and gender issues by using the knowledge of women and men to identify adaptive capacity gaps and strengths and to plan appropriate activities to reduce vulnerability of the entire community. However, subsequent indicator development and guidance failed to integrate participatory and indigenous knowledge of climate vulnerability and capacities. This lack of integration is also evident from the little attention given to household- or community-level data in climate and agriculture risk profiles, which are mostly based on national and, in some instances, district-level data.

Subsequently, other research and technical papers began to pay more attention to gender within CSA, even if attention remained low and focused on “gender sensitivity” (Bryan et al. 2017) rather than seeking opportunities for transformative change. Discourse and practice on gender in agriculture, and in rural development in general, progressed from sensitivity and mainstreaming toward responsiveness and eventually transformative, reflecting progress among academics and practitioners. Yet while gender-based challenges and barriers became increasingly referenced in policy and practice papers, there was no commitment to specific actions and measurement systems that would track progress (FAO 2016). The most significant opportunity to address this deficit was in the development of the CSA indicators by the World Bank in 2016. In this paper, indicators for CSA are divided into three indices: policy, technology, and results. While social inclusion and women’s roles in agriculture are included and there is specific guidance on the need for gender-disaggregated data, the paper does not cover gender-based differential vulnerability and only one specific indicator (#23) on gender is outlined (World Bank 2016). This specific indicator is only applicable within the Technology Index (among 27 other indicators) and only within the resilience pathway of that index. The precise wording of the indicator is that the technology “will contribute to reducing existing gender inequalities.” The absence of gender-specific indicators in the other two indices and the inclusion of only one indicator in the Technology Index, illustrates the lack of expectation about advancing gender equality within CSA and a continued tendency to confine gender-related issues to the resilience pillar, where adaptation and adaptive capacities are addressed. This isolation of gender from the productivity and mitigation pillars of CSA creates a lack of incentive to integrate gender across the entire approach and perhaps a lack of desire to secure transformative change. The lack of integration across pillars can also be attributed to no evidence emerging on any impacts because the expectations and metrics were not there, nor were the pathways to impacts through gender-transformative approaches well-enough understood to assess contributions and impact more systematically. The lack of guidance and ambitious metrics to advance gender equality in CSA led researchers, policy analysts and practitioners to produce an increasing number of critiques (Rawe et al. 2015; ACT Alliance 2017; Hellin and Fisher 2019; Anderson and Sriram 2019) and good practice papers (CARE and FAO 2019). A literature review by FAO on monitoring and evaluation frameworks, tools and guidance documents for CSA, albeit only for the resilience and adaptation pillar, marked a milestone in understanding levels of effort and commitment to measuring gender equality in CSA. Even with extensive attention to gender, the FAO paper is a literature review and does not propose new methodology (FAO 2019). Some papers address gender-based challenges and gender inequality (Nelson and Huyer 2016; Steenwerth et al. 2014) and others refer to a need for more comprehensive monitoring and evaluation of CSA. Although we did not undertake a systematic review, we did not find other technical guidance addressing the need for systematic gender-disaggregated data or attention to intersectional vulnerabilities within CSA in its initial years. In more recent years, academia and research specialists have

begun to recognize that gender research in CSA has been mostly focused on binary dynamics and antiquated gender-sensitive approaches, ignoring issues of power dynamics and social and political relations and gender (Huyer and Partey 2020).

This recognition, however, was *ad hoc* and not driven by specific efforts to establish objectives within the framework itself. Authors often describe the challenges and then provide recommendations on how CSA should be more gender responsive or gender sensitive (FAO 2021). Papers continue to be published on CSA adoption and diffusion, but neglect gender dynamics (Fusco et al. 2020).

The state of gender in CSA is evolving and progressing. Academics and practitioners continue to capture data, learn and present frameworks based on contemporary thinking and action on empowerment, social inclusion, shifting social and gender norms and other narratives (Huyer et al. 2021; Huyer 2019; CARE 2019). Projects and programs, such as the Community Resilience Partnership Program, are increasingly committing to acting on and measuring progress on gender and social inclusion (ADB 2021).

But upscaling gender equality and social inclusion actions in CSA has some way to go and evidence of impact will remain critical for change. This implies that gender-disaggregated data and an understanding of intersectional vulnerability is fundamental for progress and that metrics for success should be included as high as possible in the goals and objectives of CSA programs. From both rights-based and sustainable development perspectives, it is inadequate to consider gender equality within outputs or activities only. Building evidence on the results, benefits and attitudes to gender equality and social inclusion and adoption of CSA is important, but it will not substitute for evidence on the actual reduction of inequality, exclusion and marginalization. Research on the socioeconomic costs and benefits of CSA requires collecting and analyzing sex-disaggregated data on vulnerability to climate change, as well as on the gender-differentiated impacts of using CSA approaches. And this is not new thinking. Facilitating adaptation and introducing CSA requires continuous learning, planning, feedback and adjustment, based on climate and agriculture information as well as local experience of climate impacts and the effectiveness of CSA practices in addressing them. For these processes to work, effective channels of communication must be established between governments and institutions and people in households and communities to share their experiences and ideas and build their adaptive capacities (CARE 2011).

Establishing scientifically credible indicators and metrics on gender equality and social inclusion under a changing climate and growing social-ecological challenges is critical to creating the political will and investment required for significant transformation. Answering questions on how CSA can deliver gender-transformative change, and vice versa, will require actively setting and testing hypotheses across scales and, critically, within both agriculture and climate-change arenas. This effort will demand prioritizing key areas of innovation, such as (i) improving adaptation in and governance of social-ecological systems under climate stress; (ii) developing meaningful and relevant gender-responsive and integrated indicators (agriculture, climate change, gender) of social-ecological systems; (iii) gathering quality integrated data, information, knowledge and analytical tools for improved models and scenarios in timeframes and at scales that are relevant for decision-making; and (iv) establishing legitimate and empowered science policy dialogue for decision-making informed by metrics and indicators.

4. Synthesis of findings from key informant interviews

The relatively small number of key informant interviews limits the use of this review to assign results to specific geographies or organizations, because it is unreasonable to expect that one or two key informants can represent a whole country's or organization's operations. For example, CARE collaborates closely with the FAO Joint Programme on Gender Transformative Approaches for Food Security (JP GTA),³ yet the objectives of this initiative are not clear from the key informant interviews. However, the key informant interviews do provide insights into the spectrum of gender-disaggregated data collection, uses and shortcomings likely to be encountered in a diversity of contexts (see [Appendix 1](#) for summarized notes from the key informant interviews).

4.1 Extent of experience in gender integration in CSA programming

While most of the key informants interviewed indicated they collect gender-disaggregated data, the type of data collected, methods used and overall use of the data varied greatly across organizations. Variations appeared broadly correlated with each organization's objectives, such as "gender-sensitive" or "gender transformative," and at least one organization appeared to be "gender neutral."⁴

4.1.1 Data use

Several key informant interviews discussed the increased use of gender-sensitive impact indicators to evaluate how CSA is changing women's livelihoods and some also discussed using the data collected to inform future programming or policies. For example, PepsiCo is looking at women's empowerment and gender inclusion to build a business case for addressing these issues within PepsiCo's supply chains, while supporting farmers who are working on climate adaptation and mitigation for regenerative agriculture. PepsiCo uses gender assessments and gender-disaggregated baseline data to develop work plans for every country they operate in. They collect and use gender-integrated monitoring data to improve programming by determining what is performing well, what is not working, which interventions are bringing about impact, and build the capabilities of local PepsiCo teams. They also use gender data from learning and strategy summits to plan for the future and moving toward institutionalizing and embedding women's economic empowerment, sustainability and resilience in PepsiCo's business operations.

The FAO's CSA programming is correlating qualitative and quantitative data, such as crop production, rainfall, climate change, land ownership and migratory trends with gender- and age-disaggregated CSA adoption data to assess the impacts of various practices for target groups, and the influence of correlated factors on both adoption and impacts.

The CARE Climate Justice Center uses gender data mainly to assess the quality of existing climate justice programming, using three gender-sensitive indicators of inclusion in decision-making. CARE also integrates gender throughout the project cycle to improve program

³ Joint Programme on Gender Transformative Approaches for Food Security and Nutrition <https://www.fao.org/joint-programme-gender-transformative-approaches/overview/en>

⁴ Key informants were not asked about organizational objectives *per se*, so this is mainly a deduction from overall responses.

quality using a variety of gender-integrated data-collection tools. At the Joint Effort to Save the Environment (JESE), gender is integrated as a key dimension across the project cycle, including the design and implementation phases, and monitoring.

The Tanzania Agricultural Research Institute (TARI) builds on positive gender roles and norms in the design and implementation of projects and programs, with a special focus on gender during project design to ensure approaches and activities are adapted to women and youth.

The International Food Policy Research Institute (IFPRI) provides a mix of advisory and capacity services and research for client donors such as USAID, including the integration of gender in CSA and climate-risk screening and nutrition, to produce strategic frameworks and guidance. IFPRI also worked with the International Fund for Agricultural Development to integrate gender, nutrition, climate change and youth, and developed guidance on how to better do integration at design phase, engage key stakeholders for integration, ensure staffing, funding, and develop monitoring and evaluation and indicators. In partnership with the Federal Ministry of Economic Cooperation and Development (Germany) (BMZ), IFPRI examined how to better reach women farmers with information on climate change and CSA.

4.1.2 Data collection

The frequency of data collection depended on the length of the project for most organizations. Most organizations conducted at least baseline and endline studies, while some organizations, such as PepsiCo, collected data seasonally. Data was collected using both qualitative and quantitative tools by almost all of the organizations, except the Kenyan Ministry of Agriculture. At the International Finance Corporation (IFC), data collection started with a baseline assessment to map where women are throughout the agricultural cycle and identify the gender gaps within the agricultural value chain, particularly focusing on farm production. Focus group discussions held with both women and men gather qualitative insights to understand where women are contributing to production, where gaps are, and where women can improve with interventions and training to encourage more effective and efficient participation.

For its analysis of climate justice program quality, CARE Climate Justice Center relies mainly on a compilation of data collected by CARE project teams, including the percentage of all genders that actively participated in climate-relevant decision-making at the household level and in formal and informal spaces. Qualitative data-collection tools used by CARE to integrate gender in the project cycle include the Gender Marker Guidance,⁵ the Gender Sensitive Climate Vulnerability and Capacity Assessment,⁶ and gender analysis.⁷ Impact data is collected through baseline, endline, and sometimes midterm of projects, depending on their length.

4.1.3 Indicators

Most organizations typically used gender-disaggregated data to inform indicators on the adoption of, participation in, and reach of CSA practices by women and men. However, several organizations, namely PepsiCo, IFPRI, FAO, JESE and CARE also collected gender-disaggregated data to analyze the impact of CSA programming. Many indicators focused on agricultural production practices without broader consideration of climate-change adaptation practices or interventions. CSA data collection at TARI focuses broadly on adoption, participation and technology dissemination by women and men in communities. Other indicators include land ownership, area of agricultural plots, access to productive farm inputs, access to agricultural credits, access to labor, division of labor through different

⁵ For Gender Marker Guidance, see http://gender.careinternationalwikis.org/_media/care_gender_marker_guidance_english.pdf

⁶ For Gender Sensitive Climate Vulnerability and Capacity Assessment, see <https://careclimatechange.org/gender-sensitive-climate-vulnerability-and-capacity-analysis/>

⁷ For gender analysis, see https://genderinpractice.care.org/wp-content/uploads/2019/12/GEWV_gender-analysis-good-practices_2012.pdf

production activities, access to extension and other rural advisory services, access to markets and market information, decision-making on what to plant, sow and consume types of crops grown by women and men, and access to weather information.

JESE uses indicators within monitoring tools to capture women and women's groups' participation and the impact of programs on the lives of women, for example measuring who has control of income and household resources at the household level.

IFPRI has analyzed women's preferences on climate-smart agricultural practices and how they access information using a household survey looking at sex-disaggregated data on access to information, including A-WEAI, knowledge of and awareness of a set of CSA practices, and a knowledge test on practices to examine adoption. A randomized experimental design was used in one project with an intervention group and control group to do an impact assessment.

4.1.4 Digitization of data collection

Several key informant interviews noted the increased digitization of primary data collection through internet and phone-based interviews (FAO) and online quantitative data collection using Kobo and mWater (JESE)⁸ reducing costs and data errors. While key informant interviews mentioned that phone interviews may present limitations when targeting women and other vulnerable or isolated groups with limited access to mobile phones, they did not cite any limitations for digitized data collection in face-to-face interviews.

4.2 Gaps in monitoring, evaluation and learning systems for collecting relevant data

Most key informant interviews reported challenges in collecting gender-disaggregated and intersectional CSA data and indicated a need for increased resources to more effectively collect data, including additional staff, capacity building and training, and further time to fully understand the impacts of programming. Some key informant interviews also reported difficulty in accessing program participants due to difficult geographies, time burdens of data collection, and social and cultural norms limiting access to women and girls and other participants. Furthermore, the actual integration of gender within data collection and indicators often fell short of what would be required to fully understand the gendered impacts of CSA programming.

4.2.1 Limited resources, capacities and time horizons

According to a number of key informant interviews (FAO, IFC, IFPRI and JESE), intersectional data collection and analysis requires more resources for collection, greater timespans for observation and new tools, such as Agrisurveys, and digital technologies to improve cost efficiencies. Increasing resources is dependent on donors who may not be interested in intersectional variables beyond women. For example, IFPRI explained that during shorter project cycles (three to four years), it may not be feasible to collect impact-level data without allowing time to realize the full impacts of interventions. Training and capacity building is also needed for data collectors to better understand how to collect intersectional data from specific populations, while respecting cultural and social norms. As highlighted by CARE Climate Justice Center, survey respondents may not be willing to provide their age or may be confused on the integration of "other" gender categories used to attempt to disaggregate by gender beyond the gender binary.

⁸ KoboToolbox is a software used to collect, analyze, and manage data for surveys, monitoring, evaluation, and research. mWater provides a free, scalable technology platform that enables data-driven management by governments, utilities, water authorities, NGOs and the private sector.

4.2.2 Access to participants

FAO noted that conducting long surveys, such as those needed for intersectional data, often results in women and children being surveyed last due to cultural norms, which can reduce their representation in the sampling. They also noted that surveys to gather intersectional data require intentional targeting of underrepresented segments of the population, for example those with disabilities or minorities, and there is a need to obtain reliable and representative results through statistically significant sample sizes. While internet- and phone-based interviews can help reduce costs, they may not capture the most vulnerable populations in remote areas with limited mobile phone coverage, and women with limited access to mobile phones and technologies.

JESE noted that some areas are hard to reach, especially for women enumerators who may require protection, so field officers often accompany women enumerators to help reach households. The IFC noted that remote locations make it difficult to collect timely and thorough data on marginalized groups. Problems also arise with data collectors who may prefer to target men instead of women because of the perception that men are the heads of households. Women may not be willing to disclose information about sensitive topics in front of their husbands. In Viet Nam, only men collect field data for the Institute for Agriculture and the Environment (IAE), even though 70 percent of researchers are women, which results in a greater focus on men than women.

4.2.3 Gender integration in indicators

While most of key informant interviews stated that the organizations collected gender-disaggregated data, except the Kenyan Ministry of Agriculture, the extent that gender was integrated into indicators varied. Some only collected data from both women and men without applying gender-related indicators to CSA. For example, IFC collects data on the number of women reached and how many are adopting CSA interventions, but IFC is also actively exploring how to better attribute impacts on yields to women. Other organizations incorporated a combination of gender-sensitive CSA indicators to gain a better understanding of how women participated, accessed and adopted CSA practices and technologies. Examples of JESE's indicators include participation in CSA activities, household planning and decision-making on CSA, adoption of CSA practices (including how they are adopted), and control of income and household resources. When using secondary data sources, the integration of gender indicators depends on the priorities of the implementing organization. Organizations such as FAO may conduct specific research with additional indicators that were not initially collected to fill information gaps.

4.3 Gaps in data analysis and use from a gender, inclusion and intersectionality perspective

Most organizations did not disaggregate CSA data beyond gender, and age by some, to include other intersectional indicators, such as ethnic minorities and persons with disabilities. This exclusion was often due to a lack of resources or objectives requiring this more in-depth analysis.

4.3.1 Limited resources and objectives

Measuring outcomes and impacts requires long timeframes of project implementation and data collection, beyond that available in usual donor funding cycles of three to five years. In this environment, the most common data collected across key informant interviews are measures of intervention reach within the population, participation in activities, and participant adoption of CSA. This is the case for the Kenya Ministry of Agriculture project that does not integrate gender and has no tools to analyze gender elements of the project. The project has a large workload and does not have a specific officer in charge of gender issues

and analysis to track impacts on women. The main objective of the project is to channel funds to local projects promoting CSA, albeit with a focus on women's participation and engagement. While impacts may be transformational, transformation is not an objective of the project, and they are not assessed beyond change in income and livelihoods. CARE's Climate Justice Center uses the CARE 'Project and Program Information and Impact Reporting System' (PIIRS) for data collection to assess the levels of CSA adoption and other resilient practices in each country. In addition to this assessment, CARE includes indicators on women's participation in decision-making at the household level and in other formal or informal climate-relevant decision-making spaces. While disaggregation by age is sometimes included along with gender, it is the exception, rather than the rule, along with data on other social, economic, or demographic variables. For the IAE in Viet Nam, "gender balance" in public spaces is considered the norm, leading policymakers to believe there is no need to integrate gendered differences into action plans, strategies and policies.

4.4 Summary

Overall, PepsiCo, TARI, CARE and JESE were intentional about integrating gender within all aspects of the project cycle—design, implementation and monitoring and evaluation. IFPRI, IFC and FAO integrated gender mainly into monitoring and evaluation through the collection of gender-disaggregated quantitative and qualitative data, but did not focus heavily on gender integration in project design and implementation. The Kenya Ministry of Agriculture's CSA project and IAE did not focus on gender integration beyond collecting quantitative data from both women and men. For monitoring and evaluation, most organizations focus on gender-disaggregated data for reach, participation in CSA activities and adoption of CSA practices. PepsiCo, FAO, IFPRI, JESE and CARE also collect, analyze and use gender-disaggregated impact data to better understand the gendered impacts of adopting CSA practices and technologies. IFC is also exploring how to better attribute impacts on yields by gender. IFC, TARI, FAO, JESE and CARE also disaggregated data by age and TARI and JESE considered age when designing and implementing programming. Beyond gender and age disaggregation, only a few organizations focused on other marginalized groups, for example IAE collects data from ethnic minority groups. While CARE does not integrate social inclusion into its impact areas, it is exploring the use of Washington Group questionnaires⁹ to collect data disaggregated by disabilities and the inclusion of nonbinary gender options in surveys.

⁹ The Washington Group on Disability Statistics developed a standard set of universal questions on disability to use in censuses and surveys. These questions identify and measure disability across multiple domains of functioning and enable the comparison of data.

5. Discussion

CSA has become a major framework for development efforts over the past decade. Although it has suffered from a lack of commitment to gender equality and social inclusion, this review revealed several positive trends in the collection and use of gender- and intersectional-disaggregated data within the context of CSA. These include:

- **Use of diagnostic and facilitation tools.** Many projects are using gender assessments and baseline data (including intersectional data) to develop projects and workplans and are monitoring data to improve programming with what works and what does not. The tools rely on inclusive approaches and qualitative data to co-create, implement and monitor action plans that may be specific to CSA practices, or address larger issues such as sustainable value chains in which CSA is a component.
- **Use of WEAI, A-WEAI and pro-WEAI.** Several key informant interviews attested to using these WEAI methodologies to assess women's empowerment to evaluate impact. The WEAI tools have been in use for a decade, including for CSA, with the potential, if applied systematically across all pillars of CSA, to provide a standardized method of collecting and analyzing the impacts of CSA on women.
- **Digitalization of data collection.** The use of information technology for data collection promises to reduce cost, time and errors in what is otherwise an exacting and time-consuming process. However, special attention is required to ensure that unequal access to the technologies does not introduce bias in the data.

While each of these trends is significant, the increased use of diagnostic and facilitation tools is likely to provide the greatest immediate potential to be gender transformative, both within and beyond the CSA framework. Diagnostic and facilitation tools also open multiple pathways to increased sustainability of actions and outcomes beyond a project's life. PepsiCo is using these tools to create supply chain sustainability. The increased use of WEAI and its updated versions as a standardized source of the evidence of impact may allow comparison across socioeconomic contexts and implementation strategies to increase knowledge of what works and what does not, and to prioritize implementation strategies. This approach may also explain IFPRI's use of WEAI to provide strategic guidance for clients. Evidence of impact will also be useful for advocating for greater gender equity in CSA and beyond. Digitization of data collection has the potential to be transformative in the medium to longer term, by reducing costs to organizations and facilitating community-based monitoring in near real time and over longer timeframes. Longer timeframes are important for quantitative impact evaluations, and of greatest value for organizations with longer funding horizons, such as FAO.

Conversely, while gender equality was expected to be mainstreamed in CSA, it has often led to a limited focus on binary gender dynamics and antiquated gender-sensitive approaches based on participation, ignoring the more fundamental issues of power dynamics and social and political relations and norms as root causes of gender inequalities. This, in turn, has led to significant and interconnected gaps in the collection and use of disaggregated gender and intersectional data to assess the benefits, costs and impacts of CSA on women and other vulnerable groups, and vice versa, as revealed by this scoping study. These gaps include:

- **Lack of intention and high-level commitment** to seeking gender equality and social inclusion outcomes in CSA, and to achieve the Sustainable Development Goal 5—Achieve gender equality and empower all women and girls. While many key informant interviews attested to seeking information on the participation of women in CSA activities and women's adoption of CSA, less attention was paid to how that participation or adoption impacts women (or other groups), and even less to how women may influence CSA

practices and their uptake. For example, the key informant interviews for the Kenya Ministry of Agriculture's CSA project funded by the World Bank noted that although women received the majority of funding for CSA activities, and that the impacts of CSA may have been transformational for women, the project does not have the mandate nor adequate staff to collect data to analyze the impacts on women or vulnerable groups. Women's contributions to CSA and development are undervalued because they are not measured, creating self-sustaining errors of omission and commission.

- **Lack of central and clear guidance** on impacts envisioned and indicators required. The emphasis across most key informant interviews on participation and adoption falls short of measuring impact, even where adoption or knowledge are proxies for adaptive capacities. While several organizations collect and use disaggregated data to evaluate indicators on the impacts of CSA on women, the indicators and processes were mainly tailored according to each organization's needs and objectives. The exception was the use of the WEAI, and its updated versions, by several organizations.
- **Inadequate resources** at all levels. Donors allocate resources and project cycles according to their priorities, or those of their constituencies, which are often centered on short-term objectives of reach and participation, rather than on long-term impacts. This focus can leave impact data collection and analysis underfunded, particularly when disaggregation of data is required to measure long-term impacts on specific target groups. There appears to be a causal link between inadequate resources and a lack of high-level commitment; however, what is the "cause" and what is the "effect" is debatable.
- **Inadequate training and staffing** at project level. Several key informant interviews noted a lack of staff with gender-integration mandates. The skills to design and implement gender and intersectional data collection, monitoring and analysis are scarce.
- **Limited use of intersectional data for impact analysis.** FAO, IFPRI, TARI and PepsiCo collected socioeconomic data such as land ownership and access to information and markets to design and improve their interventions. However, this information does not seem to have contributed to outcomes assessment or impact analysis.

6. Limitations

The scope of work for this review was developed based on time and human-resource capacities. Due to the three-month time frame to conduct this research, the team focused on addressing the scope of work efficiently. The focus of the review was an overview of a large and diverse body of literature. The review provides a basis for understanding the evolution of how gender-disaggregated data has been integrated within CSA programming. Qualitative research methods were used for an in-depth understanding of gender-disaggregated data in CSA programming, and the key informant interviews were conducted to gain insights into the range of gender-disaggregated data-collection methods, uses and gaps with CSA programming. The relatively small number of the key informant interviews limits the broader applicability of the findings to entire organizations or the sector, and it cannot be presumed that a single individual speaks for an entire organization. The interviews were with only one or two representatives of each organization.

7. Conclusions

The emphasis across many key informant interviews was on measuring the participation and adoption of CSA. Therefore, upscaling gender equality and social inclusion actions in CSA has a way to go, and evidence of impact remains critical to achieving and demonstrating meaningful change. Gender-disaggregated data and an understanding of intersectional vulnerability are fundamental and essential for progress, and metrics for success should be included in the goals and objectives of CSA programs. This inclusion requires allocation of resources at the program level to cover the costs, time and effort to collect and analyze impact data. In turn, these metrics will be an essential element for advocacy to build and strengthen high-level commitment to gender equality and social inclusion in CSA program design from institutional perspectives. Learning from these metrics will also support the operationalization of gender equality and social inclusion so lessons can be extrapolated from one context or scale to another. Nevertheless, at local scales, for example households, communities and landscapes, diagnostic and facilitation tools that provide an understanding of gender and intersectional vulnerabilities and capacities are needed to create locally adapted gender equitable and inclusive approaches for CSA implementation. At this level of intervention, many of the key informant interviews indicated they are using diagnostic and facilitation tools, creating evidence-based, iterative learning on how households, communities and other local actors may best integrate gender and social inclusion in CSA and local development. Simplified gender-sensitive metrics and systems for community monitoring of gender equality and social inclusion in CSA implementation could provide valuable information for local learning, and potentially link to higher level programmatic data collection, analysis and learning.

8. Recommendations

8.1 CSA program analysis and design

- Create an alliance of organizations to advocate for greater leadership from key international and regional institutions such as the FAO, IFAD, World Bank and CSA Alliances. Key points for advocacy include
 - Mandate the integration of gender equality and social inclusion across all pillars of CSA programming, including disaggregated gender and intersectional data collection to evaluate and demonstrate impacts at program levels.
 - Recognize the importance of gender, social inclusion and gender-norm analysis to inform design and implementation, and the need to have a gender-transformative monitoring, evaluation, accountability and learning plan as part of the design.
 - Identify cost-efficient impact measurement protocols within the public domain for use by implementers. In March 2023, IFPRI presented a brief on the WEAI standardized data-collection protocols and recommended they are adopted more broadly. This data would contribute to advocacy actions and program improvement.
 - Fund opportunities for long-term disaggregated and intersectional data collection and analysis for impact evaluations.
 - Provide more guidance on integrating climate-risk analysis and climate information for producers' decision-making, including indicators.
- Key points for implementing organizations include
 - Target donors who are specifically working in intersectional areas to build and diversify the capacity to implement future programming. For example, IFPRI is targeting donors interested in youth to help expand their youth portfolio.
 - Optimize the allocation of funding and expertise by prioritizing (i) disaggregated impact data collection and analysis at the program level and (ii) disaggregated reach, participation and adoption data collection and analysis at the project level. Optimize the synergies between the two levels for data collection and analysis.

8.2 Program implementation

- Ensure adequate gender and technical expertise to implement gender-transformative approaches in CSA projects and maximize impacts of CSA programming on women's empowerment and gender equality.
- Promote social analysis and action, including through a virtual "how-to" program or series or other capacity-strengthening efforts.
- Promote the use of gender analyses and gender-sensitive Climate Vulnerability and Capacity Analyses (CVCA) to capture gender-related data on CSA to improve programming.
- Train staff to be aware of social norms and cultural traditions that may impact the ability to collect data disaggregated by gender and other intersectional identities.

- Facilitate periodic “pause and reflect” sessions through focus group discussions with both women and men to gather qualitative insights to understand where women are contributing, benefiting and being impacted, where gaps or unintended negative consequences are, and where interventions and training will encourage more effective and efficient practice of CSA for women and contribute to improvements at the production level.

8.3 Monitoring and evaluation

- Develop guidance on how to move beyond monitoring participation and adoption to evaluate the impacts of interventions and practices on women and other vulnerable groups using disaggregated and possibly intersectional data collection and analysis.
- Implement mixed-methods data collection within the same communities over longer periods of time where basic demographic data is more consistent as a means of reducing the length of surveys. These methods may include protocols for post-project follow-up, such as FAO’s Agrisurveys’ protocol.
- Use data collected throughout program implementation to inform present and future programming with an enhanced understanding of what is working well, what needs to be improved, and what is creating the largest impact.
- Collect and analyze disaggregated impact-level and reach data to better understand the impacts that can be directly attributed to women and therefore increase understanding of the importance of including gender-transformative approaches in CSA programming.
- Develop and implement simplified metrics and systems for community monitoring of gender equality and social inclusion in CSA implementation, and link to project and program monitoring and post-project follow-up.
- Simplify data-collection guidance for project staff and ensure tools are user friendly.
- Budget for resources to integrate disaggregated data collection in monitoring tools and staff capacity building.
- Plan sufficient time in surveys to ensure equal representation of women and children along with the male heads of household.
- Employ both male and female data collectors. Allow men to accompany women in insecure environments.
- Ensure that adoption of digital tools for data collection does not disenfranchise women and other marginalized groups or populations in remote areas or with limited mobile phone access. While not addressed in this scoping review, similar vigilance will be increasingly required as digital data-collection tools are combined with artificial intelligence.

References

- ACT Alliance. 2017. *Towards climate resilient agriculture and food systems: A critical assessment and alternatives to climate-smart agriculture*. Briefing. ACT Alliance. <https://actalliance.org/publications/act-alliance-eu-position-paper-food-security-and-climate-change/>.
- Anderson, S., and V. Sriram. 2019. "Moving Beyond Sisyphus in Agriculture R&D to Be Climate Smart and Not Gender Blind." *Frontiers in Sustainable Food Systems* 3–2019. <https://doi.org/10.3389/fsufs.2019.00084>.
- Bernier, Q., Franks, P., Kristjanson, P., Neufeldt, H., Otzelberger, A., and K. Foster. 2013. *Addressing Gender in Climate-Smart Smallholder Agriculture*. ICRAF Policy Brief 14. Nairobi, Kenya: World Agroforestry Centre (ICRAF). <https://hdl.handle.net/10568/27836>.
- Bryan, Elizabeth, Theis, Sophie, Choufani, Jowel, De Pinto, Alessandro, Meinzen-Dick, Ruth Suseela, and Claudia Ringler. 2017. "Gender-sensitive, climate-smart agriculture for improved nutrition in Africa south of the Sahara." In *A thriving agricultural sector in a changing climate: Meeting Malabo Declaration goals through climate-smart agriculture*, edited by Alessandro De Pinto and John M. Ulimwengu, 114–135. Washington, D.C.: International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/9780896292949_09.
- Campbell, B. M. Thornton, P., Zougmore, R., van Asten, P. and L. Lipper. 2014. "Sustainable intensification: What is its role in climate smart agriculture?" *Current Opinion in Environmental Sustainability* 8: 39–43. <https://doi.org/10.1016/j.cosust.2014.07.002>.
- CARE International. 2011. *Understanding Vulnerability to Climate Change: Insights from Application of CARE's Climate Vulnerability and Capacity Analysis (CVCA) Methodology*. CARE Poverty, Environment and Climate Change Network (PECCN). https://careclimatechange.org/wp-content/uploads/2015/05/CARE_Understanding_Vulnerability.pdf.
- CARE. 2019. *Climate Vulnerability and Capacity Analysis Handbook: Second edition*. CARE International. <https://careclimatechange.org/cvca/>.
- CARE. 2022. *Food Security and Gender Equality: A synergistic understudied symphony*. CARE International. <https://www.care.org/news-and-stories/resources/150-million-more-women-hungry/>.
- CCAFS and FAO. 2014. *Climate-Smart Agriculture: What is it? Why is it needed?* Rome: Food and Agriculture Organization of the United Nations. <http://www.fao.org/3/a-i4226e.pdf>.
- Chaudhury, M., et al. 2012. *Participatory Gender-Sensitive Approaches for Addressing Key Climate Change-Related Research Issues: Evidence from Bangladesh, Ghana, and Uganda*. Working Paper 19. Copenhagen: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). <https://hdl.handle.net/10568/24448>.
- Collins, A. 2018. "Saying all the right things? Gendered discourse in climate-smart agriculture." *The Journal of Peasant Studies* 45 (1). <https://doi.org/10.1080/03066150.2017.1377187>.
- FAO and CARE International. 2019. *Good Practices for Integrating Gender Equality and Women's Empowerment in Climate-Smart Agriculture Programmes*. <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1195137/>.
- FAO, WFP, and IFAD. 2012. *The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition*. Rome: FAO. <https://www.fao.org/4/i3027e/i3027e00.htm>.
- FAO. 2010. "Climate-Smart" Agriculture: Policies, Practices and Financing for Food Security, Adaptation and Mitigation. Rome: FAO. <https://www.fao.org/agrifood-economics/publications/detail/en/c/122846/>.
- FAO. 2013. *Climate-Smart Agriculture Sourcebook*. Rome: FAO. <https://www.fao.org/climate-smart-agriculture-sourcebook/about/en/>.
- FAO. 2016. *Eastern Africa Climate-Smart Agriculture Scoping Study: Ethiopia, Kenya and Uganda*. Rome: FAO. <https://www.fao.org/family-farming/detail/en/c/423777/>.

- FAO. 2019. *Dare to Understand and Measure (DaTUM). A literature review of Monitoring and Evaluation (M&E) frameworks for Climate-Smart Agriculture*. Rome: FAO. <https://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1258108/>.
- FAO. 2021. *Gender equality action for climate-resilient food systems and agriculture: CSW66*. FAO Informational paper. Rome: FAO. https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/66/EGM/Info%20Papers/FAO_CSW66%20Informational%20Paper.pdf.
- Fusco, G., Melgiovanni, M., Donatella, P., and T. M. Ricciardo. 2020. "How to Improve the Diffusion of Climate-Smart Agriculture: What the Literature Tells Us." *Sustainability* 12(12): 5168. <https://doi.org/10.3390/su12125168>.
- Harvey, C. A., Chacón, M., Donatti, C., Garen, E., Hannah, L., Andrade, A., Bede, L., Brown, D., Calle, A., Chará, J., Clement, C., Gray, E., Hoang, M. H., Minang, P., Rodríguez, A. M., Seeberg-Elverfeldt, C., Semroc, B., Shames, S., Smukler, S., Somarriba, E., Torquebiau, E., van Etten, J., and E. Wollenberg. 2014. "Climate-smart landscapes: opportunities and challenges for integrating adaptation and mitigation in tropical agriculture." *Conservation Letters* 7 (2): 77–90. <https://doi.org/10.1111/conl.12066>.
- Hellin, J., and E. Fisher. 2019. "The Achilles heel of climate-smart agriculture." *Nat. Clim. Chang.* 9: 493–494. <https://doi.org/10.1038/s41558-019-0515-8>.
- Huyer, S., and S. Partey. 2020. "Weathering the storm or storming the norms? Moving gender equality forward in climate-resilient agriculture." *Climatic Change* 158: 1–12. <https://doi.org/10.1007/s10584-019-02612-5>.
- Huyer, S., Gumucio, T., Chanana, N., Cramer, L., Mungai, C., Ouedraogo, M., Simelton, E., Tavenner, K., and J. Twyman. 2019. *Learning and action for gender-transformative climate-smart agriculture*. CCAFS Working Paper No. 279. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS). <https://hdl.handle.net/10568/105556>.
- Huyer, S., Simelton, E., Chanana, N., Mulema, A. Al, and E. Marty. 2021. *Expanding Opportunities: Scaling Up Gender and Social Inclusion in Climate-Resilient Agriculture: An Equality and Empowerment Approach*. AICCRA Info Note. Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA). <https://hdl.handle.net/10568/114223>.
- Jost, C., et al. 2014. *Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture*. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CAAFS), CARE International, and the World Agroforestry Centre (ICRAF). <https://hdl.handle.net/10568/45955>.
- Mbow, C., Rosenzweig, C., Barioni, L. G., Benton, T. G., Herrero, M., Krishnapillai, M., Liwenga, E., Pradhan, P., Rivera-Ferre, M. G., Sapkota, T., Tubiello, F. N., and Y. Xu. 2019. "Food Security." In *Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*, edited by P. R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, and J. Malley. <https://doi.org/10.1017/9781009157988.007>.
- Mwongera, C. et al. 2019. "Climate-Smart Agricultural Value Chains: Risks and Perspectives." In *The Climate-Smart Agriculture Papers*, edited by Rosenstock, T., Nowak, A., Girvetz, E. Springer. https://doi.org/10.1007/978-3-319-92798-5_20.
- Nelson, Sibyl, and Sophia Huyer. 2016. *A Gender-responsive Approach to Climate-Smart Agriculture: Evidence and guidance for practitioners*. FAO and CCAFS. <https://ccafs.cgiar.org/index.php/resources/tools/gender-responsive-approach-climate-smart-agriculture-evidence-and-guidance>.
- Neufeldt, H., Jahn, M., Campbell, B. M. et al. 2013. "Beyond climate-smart agriculture: toward safe operating spaces for global food systems." *Agric & Food Secur* 2, 12. <https://doi.org/10.1186/2048-7010-2-12>.
- Perch, L., and R. Byrd. 2015. *Gender in the CSA discourse: Making the case for gender smartness*. Working Paper Series No. 3. RIO+ World Centre for Sustainable Development. <http://dx.doi.org/10.13140/RG.2.1.4722.5683>.
- Rawe, T., Deering, K., Echols, W., Nierenberg, D., Nink, E., Ahern, C., and S. Small. 2015. *Cultivating equality: delivering just and sustainable food systems in a changing climate*. CARE, and Food Tank. <https://hdl.handle.net/10568/68536>.

- Steenwerth, K. L., Hodson, A. K., Bloom, A. J. et al. 2014. "Climate-smart agriculture global research agenda: scientific basis for action." *Agric & Food Secur* 3 (11). <https://doi.org/10.1186/2048-7010-3-11>.
- World Bank, FAO, and IFAD. 2015a. *Gender in Climate-Smart Agriculture: Module 18 of the Gender in Agriculture Sourcebook*. Working Paper. World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/654451468190785156/gender-in-climate-smart-agriculture-module-18-for-gender-in-agriculture-sourcebook>.
- World Bank, FAO, and IFAD. 2015b. *Gender in Climate-Smart Agriculture: Module 17 of the Gender in Agriculture Sourcebook*. Working Paper. World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/799571468340869508/gender-in-agriculture-sourcebook>.
- World Bank. 2016. *Climate Smart Agriculture Indicators*. Working Paper. World Bank. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/187151469504088937/climate-smart-agriculture-indicators>.
- World Health Organization. 2021. *WHO health and climate change global survey report*. Geneva: World Health Organization. <https://www.who.int/publications/i/item/9789240038509>.

Appendix 1. Detailed findings from key informant interviews

1. Food and Agriculture Organization of the United Nations, Rural Transformation Team (Economist) and Gender Equity Team (Policy Officer)

Use and analysis of gender data in designing CSA programs: A focus of the FAO is to generate knowledge around CSA to help understand gender differences in men's and women's adoption of CSA practices across different agro-ecosystems, including climate and social variables. This knowledge is integrated in program design as both a cross-cutting theme and as an outcome through a framework with four objectives: (i) improved life including gender equality and women's empowerment, (ii) improved environment, (iii) improved nutrition, and (iv) improved production. Within each of these objectives, the FAO program design further focuses on issues of gender integration, gender and digitization, gender and employment, gender and technologies, and gender and land. Gender- and age-disaggregated data is also analyzed to better understand issues such as employment, wage gaps and migration.

Indicators used to measure project and program outcomes and impacts: FAO uses indicators intended to measure gender and age-specific adoption and use of CSA practices across a wide spectrum of agro-ecosystems variables, and at various geographic scales from plot level to farm or household level (no mention was made of landscape scales). Additional qualitative and quantitative data such as crop production, rainfall, climate change, land ownership and migratory trends are also correlated with the gender- and age-disaggregated CSA adoption data to assess the impacts of adoption of various practices for different target groups, and the influence of correlated factors on both adoption and impacts.

Existing gaps in collecting, analyzing disaggregated data in CSA programming: While FAO is intentional about gender and age data collection and disaggregation in its programs and databases, the disaggregation of data from secondary sources is problematic, especially for data on youth and the elderly. Obtaining intersectional data from secondary sources is also problematic—FAO may conduct additional research on topics such as migration and social protection to fulfill its needs. Surveys based on a random sampling of the population will not provide intersectional data on underrepresented segments of the population such as those with disabilities or minorities, which requires intentional targeting to obtain statistically significant results. Evidence shows that conducting long surveys often results in women and children being surveyed last due to cultural norms, which can reduce their representation in the data. CSA, migration and women's empowerment are not covered in standard surveys used by country teams. It is also difficult to obtain detailed data from secondary sources on labor and employment related to CSA adoption and use.

Tools used to collect data on project and program outcomes and impacts: Increased digitization of primary data collection through internet and phone-based interviews can help reduce costs, with the caveat that it may not capture the most vulnerable populations in remote areas with limited mobile phone access. FAO is supporting a modular system of data collection and country-level analysis (called Agrisurveys) that is conducted every few years with indicators to track change over time. Case studies have provided increased information on gender and CSA adoption.

Periodicity of data collection and typology of the people involved and engaged in data collection: The collection of data on the adoption of CSA practices is often connected to specific plot variables and outcomes, and vary in frequency. The FAO relies on country-level teams for data collection.

2. International Finance Corporation—private sector investment arm of the World Bank, Manufacturing and Agribusiness Services—Asia (Agribusiness and Water Specialist)

Use and analysis of gender data in designing CSA programs: IFC works with partners and private sector companies across all regions and continents where IFC is investing on climate-smart agriculture programs. Interventions typically take place within companies that IFC invests in, working directly with smallholders within CSA. Women farmers and those in the labor force contributing to the agriculture production system are a focus in all programming. IFC starts with a baseline assessment to map where women are throughout the agricultural cycle and objectively identify the gender gaps within the agricultural value chain, particularly focusing on the farm production level. They conduct focus group discussions with both women and men to gather qualitative insights to understand where women are contributing, where gaps are, and where women can improve with interventions and training to encourage more effective and efficient participation to contribute to improvements at the production level.

Indicators used to measure project and program outcomes and impacts: All projects have dedicated indicators at output and outcome levels to track the number of women reached and how many are adopting interventions. At impact level, an endline study is conducted and conversations are ongoing about how to attribute the impacts to women, specifically. Indicators being considered include how many jobs were created, how many women entrepreneurs were created, how much finance is available for women entrepreneurs, but hoping to expand to disaggregating impacts on other indicators, such as yield increases, by gender.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: Data collection is a challenge due to the wide geographies covered by data-collection teams of only 5–10 people. Analysis of output and outcome level is not a challenge, but attributing impacts to women and men is a challenge due to the complexities of attributing certain impact to women’s adoption of certain practices. They need to be disaggregated to attribute impacts to women to create more powerful messaging. To collect data on other marginalized groups, geography makes it difficult to timely and meticulously collect data. More resources are needed on the ground to be able to collect and disaggregate data on more variables.

Tools used to collect data on project and program outcomes and impacts: Baseline and endline both use combination of quantitative and qualitative farmer-based surveys using a representative sample, where 25 percent of respondents must be women. Quantitative surveys use a detailed questionnaire, which covers project and non-project farmers. Focus group discussions cover a smaller representative sample.

Periodicity of data collection and typology of people involved and engaged in data collection: Baseline and endline data collection are part of project design. Within IFC, there is a six-month reporting period to track project progress with specific output targets set within the results framework. IFC designs questionnaires and a third party collects the data, using both women and men data collectors. IFC project teams undertake quality checks on the ground and use a digital version to ensure data quality and accuracy.

3. CARE Netherlands, Climate Justice Center Monitoring, Evaluation and Learning Specialist)

Use and analysis of gender data in designing CSA programs: The Climate Justice Center at CARE Netherlands uses gender data mainly to assess the quality of existing climate justice programming using three key indicators (see the following section). Examples of their use in program design were not provided beyond stating that these indicators are included within a program’s monitoring design.

Indicators used to measure project and program outcomes and impacts: Three key indicators are used to measure climate justice program quality. They measure (i) levels of

gender-disaggregated individuals' participation in decision-making at the household level, (ii) their participation in other formal or informal climate-relevant decision-making spaces, and (iii) their levels of adoption of adaptive organizations and anticipatory practices to protect and promote resilient livelihoods.

Existing gaps in collecting and analyzing disaggregated data in CSA programming:

Disaggregation by age is sometimes included along with gender but is more the exception than the rule. Collecting data on other social, economic or demographic variables is not a requirement and is often left out of surveys. CARE country offices are not seen as strong in collecting data on social diversity and, at least in Uganda, people are reticent to provide their age. Including nonbinary gender options in surveys can lead to confusion among participants, so tools are often forced to remain gender binary. When partners are conducting the surveys, they may not see the value of collecting even age and gender-disaggregated data, and not use CARE tools to do so. One effort to collect data on disabilities was made with the Washington Group and difficulties were encountered at the country level to contextualize the tools.

Tools used to collect data on project and program outcomes and impacts: Consultants are often used to conduct surveys and will produce tools derived from global indicators. Tools usually include guided questionnaires, focus group discussions, and in some cases, observations—a mixed-methods approach.

Periodicity of data collection and typology of people involved and engaged in data collection:

Impact data for longer projects (five years) is collected at baseline, midterm and endline of projects, while shorter projects (three years) will only have baseline and endline data collected. Data about project reach is usually collected after any training using an attendance roster with name, age and gender. Enumerators for data collection are usually required to have 50/50 gender balance, but there is no requirement for this split, and efforts are made to include people with disabilities. For internal monitoring in Uganda, CARE tracks who is using the tools, and why they might not be using them.

4. Joint Effort to Save the Environment (JESE)—Uganda, Agriculture and Livelihood Department (Head of Department)

Use and analysis of gender data in designing CSA programs: JESE currently have three programs that integrate CSA practices and technologies with smallholder farmers, focusing on women. The programs interventions have clear outcomes specifically focused on the engagement of women. Gender is considered a key factor in all aspects of the project cycle—design, implementation and monitoring—using clear indicators within monitoring tools to capture women and women's groups participation, and the impact of programs on lives of women.

Indicators used to measure project and program outcomes and impacts: Indicators include: participation in activities, for example how many women participated in a demonstration-site training; household planning and decision-making—a woman may go to a demonstration site and learn about technologies, but since men have more access to and control of land, households need to plan and work together to make decisions on CSA; adoption of practices—the number of women who are adopting CSA technologies and how they are adopting practices; and control of income and household resources—who has control and access at the household level.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: When collecting data from households, enumerators may prefer to target men rather than women because of perceptions that men are the heads of households and will be better to interview. Women may not be willing to disclose information around sensitive questions. When asking gender-sensitive questions, it is important to have discussions with women alone because they may not feel comfortable or secure disclosing information when their husbands are present. Some areas are hard to reach, especially for women enumerators, where field officers accompany women enumerators to help reach households.

When engaging youth, they often want interventions that are straightforward, clear and bring quick profits. Therefore, youth may be best engaged in a value chain in marketing, transportation, processing or value addition because in these stages of the value chain, money can easily be seen.

JESE has not focused on intersectional variables as an organization yet. However, challenges would arise around a lack of resources, for example additional days to collect and analyze data, and tools would need to be designed to capture these variables. Donors and partners may not be interested in intersectional variables beyond women; therefore, discussions are needed with partners on what data is valuable to both donors and implementing partners.

Tools used to collect data on project and program outcomes and impacts: Tools are both qualitative and quantitative. Quantitative data-collection process is done online using Kobo and mWater.¹⁰ Qualitative data collection is done through focus group discussions, joint monitoring on farmer field days and success and change stories.

Periodicity of data collection and typology of people involved and engaged in data collection: Data collection occurs annually at the mid-year and end-year (every six months). Baseline and endline data are collected at the beginning and end of projects. Enumerators are hired to collect data, with monitoring by JESE to ensure that both women and men are hired to collect data.

5. Ministry of Agriculture and Rural Development, Viet Nam: Institute for Agriculture and the Environment (IAE) (Senior Researcher)

Use and analysis of gender data in designing CSA programs: IAE provides technical support to develop government policies on climate change and CSA. Since 2011, IAE has supported national action plans, GHG reduction and energy strategies, and climate change adaptation plans. IAE adopted gender-balanced discussion groups to include women in both technical issues and policy development. Disaggregated data on gender and intersectional variables was collected to provide technical support for policy development; however, gender issues are not clearly mentioned in action plans and strategies. The interviewee felt that gender issues were not addressed comprehensively in field data collection and analysis. Nevertheless, both men's and women's perceptions on climate-change mitigation actions were surveyed. In other studies, the IAE has focused on the distribution of agricultural work between women and men, decision-making in the household and unpaid housework. But no in-depth analyses have been undertaken.

Indicators used to measure project and program outcomes and impacts: The IAE collects data on CSA adoption of both male and female farmers. They also conduct research to assess the impact of climate change on farmers, agricultural production and livelihoods of farmers (but no specific indicators were mentioned in the interview). Additionally, follow-up data collection is conducted on the impact of action plans to review and influence future plans.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: The methodology to collect data presents a challenge as many policymakers are not aware of gender issues, and they are not a requirement when conducting research with government budgets. The interviewee stated that policymakers in Viet Nam think that gender is very balanced in the country, so it is difficult to integrate into action plans, strategies and policies. The interviewee suggested there is a need to move beyond including women and men while developing policy, to addressing gender issues for the end users of the policy: farmers, vulnerable people and ethnic groups. To address gender issues, there is a need for capacity building to transform data-collection practices and analysis, technologies, and tools. Data collection in areas where the population is highly educated is much easier and there is greater gender balance. However, when working with ethnic minority groups in more remote areas,

¹⁰ KoboToolbox is a software used to collect, analyze, and manage data for surveys, monitoring, evaluation, and research. mWater provides a free, scalable technology platform that enables data-driven management by governments, utilities, water authorities, NGOs and the private sector.

women may be shy and may not be comfortable providing information or may not have a lot of knowledge about agricultural work, making it more difficult to collect data. Additionally, women may not speak Vietnamese, but rather a local language, which also presents a challenge for collecting data.

Tools used to collect data on project and program outcomes and impacts: To collect data, IEA use face-to-face survey data collection and sometimes use rapid participatory analysis for both male and female groups. Studies are mainly quantitative.

Periodicity of data collection and typology of people involved and engaged in data collection: The frequency of data collection depends on the project, but usually data collection is done during project development. The IAE has field study experts to collect data, who are mainly rural researchers. About 70 percent of IAE researchers are women, but usually men go to the field to collect data. Because of this, data collection focuses more on men than women.

6. Kenya Ministry of Agriculture, Department of Agriculture, Livestock, and Fisheries (County Environment and Social Safeguard Compliance Officer)

Use and analysis of gender data in designing CSA programs: The Kenya Climate-Smart Agriculture Project is funded from World Bank, while the County Government of Kenya contributes 20 percent of the project costs to World Bank funds and pays salaries. The project is tailored toward empowering small-scale farmers to increase productivity and build resilience to climate-change risks to survive, produce food and create employment within rural communities. Gender balance is a considered factor in approving local projects submitted for funding. In Kenya, women typically form official groups, so the majority of those funded are women. Gender issues are important and play a role in technology adoption. However, gender data is not collected with the purpose of analyzing the impacts of the project on women or vulnerable groups.

Indicators used to measure project and program outcomes and impacts: Data is primarily collected on those the project has reached and those trained in technologies. Impact data collection is focused on adoption of technologies, income generation from project activities, and how many people have changed their livelihoods.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: The project does not integrate gender, and there are no tools to analyze gender elements. The project does not have a specific officer in charge of gender issues and analysis to track impacts on women and other staff are unavailable for this work. In some communities, it may be difficult for women to speak to male enumerators, so female enumerators are needed to reach the women. Community context needs to be considered when deciding who should collect the data. In some communities, women may not have a formal education and may speak a local dialect, making it more difficult to train them on technologies. A specific gender officer is needed, trained in gender issues and the proper tools to collect gender-disaggregated data, including software to help with analysis.

Tools used to collect data on project and program outcomes and impacts: Only quantitative tools are used to collect data, which is not disaggregated by gender or other intersectional variables.

Periodicity of data collection and typology of people involved and engaged in data collection: No periodicity of data collection was provided, but given that primary indicators are for reach and participation, they are likely to be collected annually for reporting purposes. Data is primarily collected by monitoring, evaluation and learning officers employed by the project. In Kenya, all offices must have a 30 percent/70 percent split of gender. However, in the interviewees office, all data collectors are men.

7. Tanzania Agricultural Research Institute (TARI), Crop Science Department (Crop Scientist, Plant Breeder, and Center Director)/Social Economics Department (Social Economist and Gender Expert)

Use and analysis of gender data in designing CSA programs: TARI is working with a Norwegian agency in rice programming and focus on rice system intensification. TARI is looking at how to minimize water resources in rice production to increase efficiency and reduce greenhouse gas emissions. The focus is on soil fertility and crop management using conservation agriculture, crop rotation, efficient use of fertilizers (specifically organic fertilizers), and drought and semi-arid tolerant crop varieties for different crops, such as rice, maize and finger millet. They build on positive gender roles and norms in designing and implementing projects and programs with a special focus on gender during project design to ensure approaches and activities are adapted to women and youth. In monitoring and evaluation, both men, women and youth are involved, and information is collected from each of these groups.

Indicators used to measure project and program outcomes and impacts: Data collection on CSA focuses broadly on adoption, participation and technology dissemination by women and men in communities. Other indicators include land ownership, plot size, access to productive farm inputs, access to agricultural credits, access to labor, division of labor through different production activities, access to extension and other rural advisory services, access to markets and market information, decision-making on what to plant sow and consume, types of crops grown by women and men, and access to weather information.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: Data is collected at a singular point, so data is collected from the same households over time to capture how gender dynamics and relationships change over time. Sometimes, there are challenges collecting data from women who are unable to provide responses to questions about access to productive resources, decision-making on what crops to plant, or the sale or consumption of produce, because women in the households may not have ownership over resources. There are also challenges relating to the financial and human resources to collect gender-disaggregated data in a timely way since many of the programs are dependent on donors and implementing partners. Greater resources may facilitate household panel data being collected over time to increase the understanding of dynamics related to farm production, adoption of CSA technologies and income. Mixed methods to gather information from both individuals and groups would also be useful.

Tools used to collect data on project and program outcomes and impacts: When collecting data to ensure gender integration, women and men are included in survey collection and in focus groups, with separate groups held for women and men, groups with all genders, groups for youth, and groups with all ages and genders. Quantitative data is collected with questionnaires for households, and qualitative data is collected with checklists for focus groups discussions.

Periodicity of data collection and typology of people involved and engaged in data collection: Data is collected once during the project depending on what is being studied and on the project itself. Baseline data may be collected at the beginning of the project, adoption information is collected during implementation of projects, and impact information is collected at the end of the project. Data is collected by researchers with multidisciplinary teams consisting of TARI researchers and partners and stakeholders at the district levels.

8. International Food Policy Research Institute (IFPRI), Transformation Strategies Pillar in Natural Resource Strategies Unit (Senior Scientist)

Use and analysis of gender data in designing CSA programs: Through the Gender Climate Change and Nutrition Integration Initiative, IFPRI provides a mix of advisory and capacity services and specific research to USAID, the missions and their partners anywhere that Feed the Future programs are ongoing. IFPRI developed a conceptual framework for the Global Food Security Strategy and integrated gender and nutrition into climate-risk screening. IFPRI

relies mostly on secondary data. IFPRI supports students with grants and encourages uptake of data from the Feed the Future project in research on the intersections of climate, gender and nutrition. IFPRI also examined the gendered impacts of COVID-19 and are currently undertaking phone surveys on the gendered impacts of global food crisis. IFPRI conducted a small spinoff project working with IFAD to integrate gender, nutrition, climate change and youth, from which they developed guidance on how to better integrate at the design phase, engage key stakeholders for integration, ensure staffing and funding, and develop monitoring and evaluation and indicators.

IFPRI also implemented a project funded by German Federal Ministry for Economic Cooperation and Development (BMZ) to examine how to better reach women farmers with information on climate change and climate-smart agriculture. It began with a qualitative data analysis of women's preferences for climate-smart agricultural practices and how they access information. This project also conducted a household survey that looked at sex-disaggregated data on access to information and knowledge and awareness of a set of CSA practices using an abbreviated Women's Empowerment and Agriculture Index (A-WEAI), and a knowledge test on practices to examine adoption.

Indicators used to measure project and programs outcomes and impacts: Indicators include A-WEAI, women's CSA preferences, and sex-disaggregated surveys on (i) adoption and/or awareness of CSA, (ii) access to information, (iii) experiences with climate shocks, (iv) perceptions of climate change, (v) production-level/plot-level data. A randomized experimental design was used in one project with an intervention group and control group to do an impact assessment.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: The largest challenge for examining many different areas of projects, such as gender, production plots, livestock, climate change etc., is that long surveys are required, which are a burden on farmers. Collecting data on intersectional variables for impact evaluations requires an increase in sample size for each additional variable, and for quantitative data, focus group discussions need to be conducted with all different target groups. When adding sex-disaggregated data, the collection of this data becomes even more challenging because the same questions are asked of two different people in the household. The short time frame of projects limits the outcomes that can be observed, for example it is difficult to measure gender-transformative approaches and social norm changes without going back over a longer period. It would be ideal to obtain funding to go back to communities years later and see the outcomes of efforts over the long term. Donor funding is not available to design projects that examine these intersectional impacts over the long term. For example, expanding the CGIAR GENDER Platform to become the Gender, Youth and Social Inclusion Impact Platform will require more resources for additional work within these sectors, or require a trade-off to do more with less or take resources away from ongoing work with gender.

IFPRI has identified an evidence gap linking women's empowerment and CSA—there is a need to do more research on the linkage between women's empowerment and information and adoption of CSA practices, and how CSA practices might impact women's empowerment and outcomes. There is a need for more mixed-methods studies—starting with focus groups to identify gendered roles, design interventions with this information in mind, follow-up with surveys on how farming practices are changed based on intervention and adoption of CSA, and the outcomes of these interventions.

Tools used to collect data on project and program outcomes and impacts: IFPRI also used local partner membership lists with demographic data and collected household roster data. The Climate Change, Agriculture and Food Security project in Uganda gave women cameras and videos to collect photos of the practices that they are doing to adapt to climate change. The data collection and interventions focused on women but not on other intersectional identities.

Periodicity of data collection and typology of people involved and engaged in data collection: The most common periodicity of data collection is at the baseline and endline of

the project cycle. IFPRI usually works with local partners to collect data—either a local firm, university or another group. In Kenya, groups collected data using members who were not involved in the intervention.

9. PepsiCo, Global Sustainability Office/Sustainable Agriculture Team (Senior Manager)

Use and analysis of gender data in designing CSA programs: PepsiCo has a partnership with USAID examining women’s empowerment and gender inclusion to build a business case for their importance within PepsiCo supply chains, while supporting farmers who are working on climate adaptation and mitigation for regenerative agriculture. PepsiCo uses gender assessments and baseline data to develop workplans for every country they operate in. These workplans are reviewed seasonally or yearly depending on growing seasons. The program does not examine CSA specifically as climate is a cross-cutting component of all work. PepsiCo employs a whole-of-organization approach to embedding sustainability and building resilience in supply chains with farmers and communities. Program goals are to ensure that 100 percent of what PepsiCo source is sustainable, to achieve 7 million acres of sustainable agriculture, to reduce carbon emissions in 2030 by 40 percent compared to a 2015 baseline, and to improve the livelihoods of 250,000 people and communities. PepsiCo is using its Livelihoods goal to drive gender-transformative thinking into business. They use monitoring data to improve programming (what is performing well, what is not working, what interventions are bringing about impact), and build the capabilities of local PepsiCo teams. PepsiCo also uses data from learning and strategy summits to plan future years and move toward institutionalizing and embedding women’s economic empowerment, sustainability and resilience into PepsiCo’s “business as usual” operations.

Indicators used to measure project and program outcomes and impacts: Impact indicators include women’s economic empowerment indicators, livelihoods indicators (income, wages), and business specific indicators (what are businesses looking to address). Other indicators include land tenure, percentage of women in supply chain, capacity development opportunities and access to those opportunities, level of satisfaction of working conditions, gender attitudes, voice and agency, access to goods and services, and equal access from a norms and belief point of view.

Existing gaps in collecting and analyzing disaggregated data in CSA programming: There are no data-collection issues so far, with the possible exception that there may be challenges with different intersectional identities with migrant workers. The overarching need for PepsiCo is to make the business case for women’s economic empowerment in agriculture business supply chains by building the causal relationship between gender improvements and social outcomes, and how they have driven business outcomes. “Gender is a great enabler of business and commercial success and if we do meaningfully include and empower women, we can actually drive commercial benefits.”

Tools used to collect data on project and program outcomes and impacts:

To collect data, PepsiCo uses both quantitative and qualitative tools. Quantitative data is collected through surveys and questionnaires with farmers and qualitative data is collected through focus group discussions. All data is disaggregated by age and at a minimum, all quantitative data is disaggregated by gender and qualitative data is gender-disaggregated as much as possible. Separate focus group discussions are conducted with women participants to capture the changes in their perceptions and attitudes related to gender equality and women’s empowerment.

Periodicity of data collection and typology of people involved/engaged in data collection: Seasonal monitoring is reviewed at the end of each year to inform work program; PepsiCo also undertake baseline and endline evaluations. Data collection is performed through external consultancies by people who are local, speak the local language, including women.

Appendix 2. Key informant interview guide

Scoping review on gender-disaggregated data on climate-smart agriculture

Informed consent

Good morning/afternoon! The Food and Water Systems Team members leading the key informant interviews will introduce themselves and take the key informant through the consent process as follows. We are collaborating with International Rice Research Institute (IRRI) for a Scoping Review on Gender-Disaggregated data on Climate Smart Agriculture. The purpose of this analysis is to 1) identify where gender-disaggregated data is being collected and analyzed in CSA programming and 2) identify data gaps contributing to gender inequalities faced by women from accessing and benefiting equitably from CSA programming and actively engaging in food systems. You are being asked to participate in this key informant interview because of your/your organization's important role in gender in agricultural programming in general and gender in CSA programming in particular. This is going to be an open-ended conversation with guiding questions and will take us about 1.5 hrs. Could you kindly let me know if you are interested to take part in this interview? Please note that you have the right not to answer any of the questions or to stop the interview at any time. Do I have your permission to record this interview? recording will only be used to transcribe our discussion and your response will inform a case sample on your organization's experience on gender-disaggregated data on CSA. We would appreciate it if you could come back to us with documents that you think we need to review in order to triangulate the findings from this interview. Before we begin, do you want to ask me any questions?

Questions	Capture the responses here
Name	
Organization	
Position	
Male/Female	
1. Does your organization have/support programs that focus on Climate Smart Agriculture in low and middle income countries? <ul style="list-style-type: none"> • If yes; what is it called? Which countries? Any one country you would like to put emphasis to? Could you please send me a brief or any document on this program/programs so that we get to read the details? • If No, could you tell me your organization's experience on CSA in general? • If the person says no, continue with the relevant questions below. 	
2. Is gender an outcome in your CSA program? <ul style="list-style-type: none"> • If yes, how do you ensure gender integration in programming? Do you have tools for that? 	

Questions	Capture the responses here
<p>3. Do you collect, analyze and use gender, social, economic and demographic intersectional variables disaggregated data in CSA programming?</p> <p>If yes, pertaining to:</p> <p>a. People’s participation in production, climate change adaptation and mitigation activities</p> <ul style="list-style-type: none"> • What are the sample indicators at this stage? • What types of tools do you use? • How often do you collect such data? • Who collects the data? <p>b. People’s access to information and CSA approaches and technologies</p> <ul style="list-style-type: none"> • What are the sample indicators at this stage? • What types of tools do you use? • How often do you collect such data? • Who collects the data? <p>c. People’s adoption of CSA practices and technologies</p> <ul style="list-style-type: none"> • What are the sample indicators at this stage? • What types of tools do you use? • How often do you collect such data? • Who collects the data? <p>d. The impacts of climate-smart agriculture approaches and technologies on people in their respective diversities</p> <ul style="list-style-type: none"> • What are the sample indicators at this stage? • What types of tools do you use? • How often do you collect such data? • Who collects the data? 	
<p>4. What are some of the challenges in collecting, analyzing and using gender-disaggregated data? How about challenges in broadening the scope to collect and analyze and use data on intersectional variables including gender, social, economic and demographic variables?</p>	
<p>5. What are your recommendations for efficiently collecting, analyzing, and using gender, social, economic and demographic intersectional variables disaggregated data in CSA programming?</p>	
<p>6. Do you want us to put a spotlight on any one program/ project on CSA that is efficiently collecting, analyzing, and using gender, social, economic and demographic intersectional variables disaggregated data?</p> <p>If yes,</p> <p>Could you please send a program brief/document that we can review?</p>	
<p>Thank you!</p>	



Generating Evidence and New Directions for Equitable Results (GENDER) is CGIAR's impact platform designed to put equality and inclusion at the forefront of global agricultural research for development. The Platform is transforming the way gender research is done, both within and beyond CGIAR, to kick-start a process of genuine change toward greater gender equality and better lives for smallholder farmers everywhere.

gender.cgiar.org



CGIAR is a global research partnership for a food-secure future dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources.

cgiar.org