Gender and youth responsiveness considerations for targeting, testing and scaling suitable CSA practices and technologies

Learnings from the Climate-Smart Villages

Working Paper No. 417

CGIAR Research Program on Climate Change,
Agriculture and Food Security (CCAFS)

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Abstract

This working paper summarizes the findings of a portfolio review conducted to explore the gender and youth responsiveness of climate-smart agriculture technologies tested across climate-smart villages. The innovative and integrative aspect of the Climate-Smart Village (CSV) approach can provide useful insights into how to decrease the gender gap in the context of climate change. The diverse settings of CSVs (across East and West Africa, South and Southeast Asia and Latin America) and long program timeline, present a unique opportunity to gather learnings for the broader agriculture research for development community and practitioners. Toward these points, this paper aims to assess how gender and youth responsiveness was integrated into the process of identifying, testing, promoting, and scaling suitable CSA practices and technologies in the context of the implementation of the CSV approach. The review found that collective action and local partner engagement has proved to be very successful in the CSVs in regards to gender outcomes. To improve the gender and youth responsiveness of CSVs, it is essential taking those considerations into account from the very beginning of the project design, as well as having a GSI expert involved.

Keywords

Agriculture; climate-smart agriculture; gender; youth; social inclusion; climate-smart villages

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Lastly, we would like to thank Geraldine Rojas for analyzing the Spanish resources and translating them so they could be included in this review.

Contents

Acronyms

CGIAR	Consultative Group on International Agricultural Research
CBO	Community-based organization
CSA	Climate-smart agriculture
CSV	Climate-smart village
GED	Gender empowerment dimension
GSI	Gender and social inclusion
PAR	Participatory action research

Introduction

Climate-Smart Village Approach

The climate-smart village (CSV) concept was developed in 2012, a year after the onset of the CCAFS program moved ahead of the traditional benchmark sites used to test and evaluate agricultural practices and technologies. CSVs are envisioned as "models" of local actions that enhance productivity, increase incomes, achieve climate resilience and enable climate mitigation (CCAFS 2013).

The CSV approach was proposed as a means to address the need for proven and effective location-specific Climate-Smart Agriculture (CSA) options in the context of climate change. Specifically, it is an agriculture research for development (AR4D) approach to test technological and institutional agriculture adaptation options, through participatory methods (Aggarwal et al. 2018). It aims to co-generate bottom-up evidence on what the best climate-smart agriculture (CSA) options are for specific socio-economic, environmental and climatic conditions and use this evidence to inform stakeholders such as policy makers and development practitioners.

The approach identifies, tests and promotes packages of climate-smart agriculture (CSA) technologies, practices, and climate-information services that are relevant to face the climate-related threats of a given CSV site. The aim of the CSV approach is to:

1. Understand the effectiveness of a variety of CSA options (practices, technologies, services, programs, and policies) not only to enhance productivity and raise incomes, but also to build climate resilience, increase adaptive capacity, and wherever possible, reduce GHG emissions;
2. Develop (no regrets) solutions in anticipation of future climate change impacts;
3. Understand the socioeconomic, gender, and biophysical constraints and enablers for adoption; and
4. Test and identify successful adoption incentives, finance opportunities, institutional arrangements, and scaling out/up mechanisms while ensuring alignment with local and national knowledge, institutions, and development plans.

The approach involves empowering farming communities through key components, which include: CSA practices and technologies, climate information services and insurance, local and national public and private institutions, national and subnational plans and policies, farmers' knowledge, and climate and agriculture development finance (Aggarwal et al. 2018).

The key steps in the CSV AR4D approach are presented in Figure 1 below. However, in CSV sites, the steps are based on stakeholder engagement and rarely follow a linear model as each CSV has its own theory of change that is connected to national priorities in order to make sure it is aligned with initiatives across various scales (Aggarwal et al. 2018)

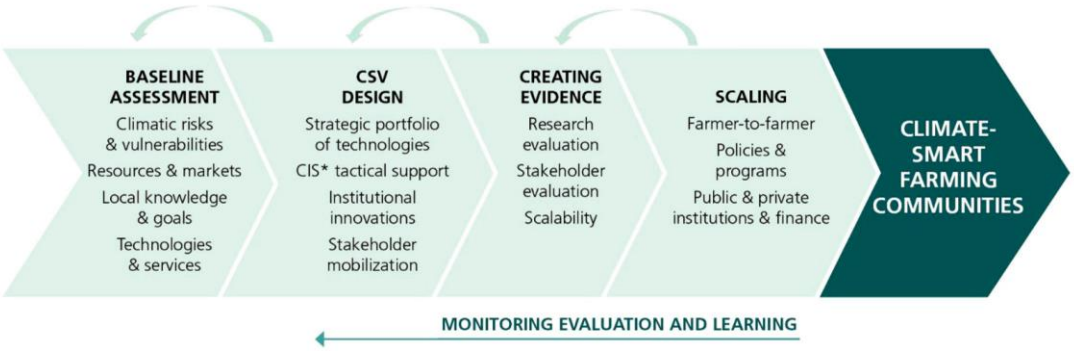

Figure 1. Outline of steps in a typical CSV AR4D site (Aggarwal et al. 2018)

The number of CSV sites evolved throughout the years, 15 sites were initially established in South Asia, West Africa, and East Africa before expanding in 2014 to Latin America and Southeast Asia. At the end of 2017, a total of 35 CSVs were established and managed by CCAFS and partners, covering 20 countries across all 5 CCAFS priority regions (see Figure 2). After that, further efforts focused on scaling through external partners (bilateral projects namely in South Asia), the number of CCAFS CSVs went down; there were 11 in 2021. Villages chosen for the CSV project were all areas that were at a high-risk to the impacts of climate change (Förch et al 2013).

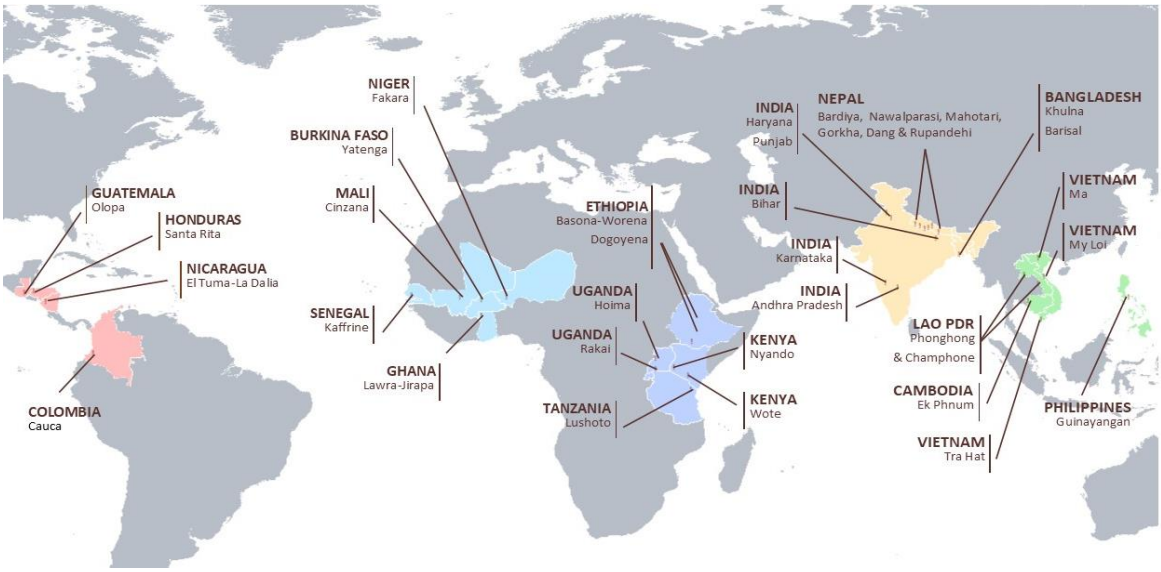

Figure 2. CSV locations over the course of the CCAFS program cycle.

Gender and Youth Responsive Approach

Climate change is expected to exacerbate existing social and gender inequalities and have more of an impact on women than men in the food security and agriculture sectors (IPCC 2014). Women contribute a significant share to agricultural production but often have less access to financial capital, advisory services, markets and productive resources compared to men (Nelson & Huyer 2016). This is known as the gender gap in agriculture, and it has been documented globally. Specifically, there are still significant gender gaps in access to and control over land, information, technology, labor, and credit (Huyer 2016; Ashby 2012). It also includes gender differences in decision-making capacities, participation in and use of different resources, abilities to benefit from agricultural outcomes including increased productivity and incomes as well as fulfillment of needs and requirements based on resources available.

The gender gap in agriculture contributes to the differences in vulnerabilities and adaptive capacities of men and women farmers (Huyer 2016). It needs to be taken into account in order to promote adoption of sustainable CSA practices for both men and women, to not reinforce existing inequalities, and to prevent unintentionally contributing to adverse outcomes (Nelson & Huyer 2016; Ashby 2012). To assess progress towards closing the gender gap, it will be necessary to look at if women have equal access and control over the use of resources, whether women are active participants in the use of and decision around the increased production and income, and if the resources that women have access to meet their priorities and requirements (Huyer 2016).
One way to do this is through a gender-responsive approach that recognizes and adequately addresses the “particular needs, priorities, and realities of men and women in the design and application of CSA so that both men and women can equally benefit” (Nelson & Huyer 2016).

However, challenges are often faced when trying to take a gender-responsive approach, or support the adoption of CSA for women in agriculture. The enabling environment plays a large role. Weak political commitment to gender equality, low levels of gender inequality awareness, or resistance to the integration of gender can all limit the use of a gender-responsive approach (Nelson & Huyer 2016). Insufficient funding or staffing also plays a role, as do cultural barriers that limit women’s access to land, participation in agriculture activities, organizations, and leadership roles (Nelson & Huyer 2016). Logistical challenges such as time constraints, reduced funding for gender-related activities, lack of gender expertise on a project, and limited monitoring of results can also hinder the use of a gender-responsive approach (Nelson & Huyer 2016).

In addition to gender, social inclusion involves socioeconomic status, ethnicity, disability and age in regards to dynamics surrounding perspectives, access to resources, and needs (Huyer et

al. 2016). Youth-responsive approaches will also need to recognize and account for the needs and priorities of youth, while taking advantage of opportunities to engage them. Entry points for youth and CSA include value chain approaches, information communication technologies, digital technologies, social platforms, and collective action (Bullock et al. 2020).

Gender and youth inclusion in CCAFS

As noted previously, understanding the gender and socioeconomic constraints and enablers of adoption in the target area is one of the pillars in the strategy for implementing the CSV approach. Considering gender and social inclusion is extremely important when aiming to scale CSA in an equitable manner that accounts for differences in preferences and needs.

CCAFS' most recent gender and social inclusion (GSI) strategy was released in 2016, and a larger focus on youth came later in the game, with the publishing of CCAFS' Youth and Climate-Smart Agriculture (CSA) Strategy in 2020. The CCAFS Youth CSA Strategy was largely interwoven within the GSI strategy, although the strategy does commit to addressing youth separately from gender-related activities. The strategy aims to improve youth's control over productive assets and resources, as well as increase their participation in decision-making at both local and national levels (Bullock et al. 2020).

Similar to gender, youth also face challenges in regards to accessing resources and assets. In many developing countries, youth, and especially young women, do not have rights over or access to assets, notably productive land. Youth also face challenges with accessing capital, financial services, and inputs as well as hold limited decision-making power. All of these factors can limit youth's ability to adapt to climate change. It is essential that young people's capacity to adapt is improved, given that countries with large youth populations often heavily depend on agriculture. These same countries are expected to face extreme heat stress in the future, which will put a strain on the livelihoods of young people who have limited employment opportunities outside of agriculture (Bullock et al. 2020).

Gender has been considered from the start of the CCAFS program, with gender impact being listed as an explicit goal and cross-cutting element of the program (CCAFS 2011). In the program plan summary for CCAFS phase I, what is now called 'social inclusion' was referred to as 'social differentiation' and it noted this term included wealth and age in addition to gender. The summary mentions that goals around gender and social differentiation will impact how CCAFS research and policy is carried out, and with whom (CCAFS 2011). The CCAFS Phase II proposal continued to discuss gender and social inclusion. Specifically, phase II stated that strategic GSI research would take place within CSVs through the analysis of gender household

surveys and by enabling mechanisms, tools and frameworks for gender in CSA and implementing strategies to scale these. Utilizing gender transformative approaches to empower women was discussed as a goal of the program. It also mentions that gender, youth, and social inclusion are essential to CCAFS' theory of change (CCAFS 2016). Both CCAFS phase proposals note that women are important agents of change within agricultural production, food and nutritional security, and livelihoods.

Objective

The innovative and integrative aspect of the CSV approach can provide useful insights into how to decrease the gender gap in the context of climate change. The diverse settings of CSVs (across the five CCAFS regions) and long program timeline, present a unique opportunity to gather learnings for the broader AR4D community and practitioners. Toward these points, this paper aims to assess how gender and youth were integrated into CSV work, and how this may have influenced the adoption of CSA options that are gender and/or youth responsive. Specifically, this report aims to answer the following key research questions:

1. How were youth and gender specific needs/capacities considered in CSV work aiming at the co-development and increased adoption of CSA technologies and practices? Did the inclusion of gender considerations lead to gender equality related outcomes?
2. What worked well regarding the identification and testing of gender and youth responsive CSA technologies? What were the main challenges?
3. What are the lessons learned? What are key recommendations for practitioners?

To answer these questions, three methods of data collection were conducted: a portfolio review, interviews with CCAFS regional staff, and a survey with local partners directly involved in the CSV work. Further detail regarding the approach is discussed in the following section. It is important to note that the results of this portfolio review do not necessarily reflect all that was done in the CSVs, rather what was published. Additionally, our report specifically focuses on gender and youth inclusion in CSV activities at the local level, and within the scope of CSA practices and technologies.

Methodology

Phase 1: Portfolio Review

Work on this report began with the identification of CCAFS resources to include in the review. The resources included a mix of journal articles and grey literature. The resources were found through searches on the CCAFS archive, CGSpace, and the Gardian. Filters were used to gain resources by CCAFS flagships, regions, and year. Resources that were published between 2013 and the time of the search (March 2021) were considered for review. Additionally, the following keyword searches were used to identify resources:

- Climate-smart villages AND gender
- Climate-smart villages AND youth
- Climate-smart agriculture AND gender
- Climate-smart agriculture AND youth
- Climate AND gender AND agricultural productivity
- Climate AND gender AND food security

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology (see figure 3) was followed for selecting the articles for review. The preliminary list of resources totaled 211, but after further screening there were a total number of 111 resources that were assessed in the portfolio review (please see Appendix C for the full list of resources). Whether a resource was included or excluded was based on their applicability to the topic (gender, youth, CSA technologies and practices, CSVs) and objective of the report, as well as those that were too brief/lacked sufficient detail to properly inform the data collection matrix. The final list of resources lists were validated with CCAFS regional teams.

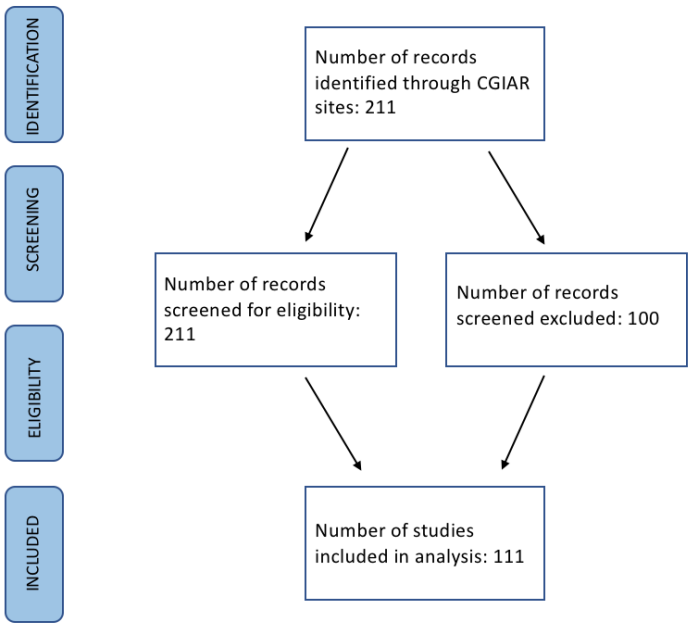

Figure 3. Process for resource identification and inclusion (adapted from The PRISMA Approach by Moher et al. 2009)

A review of CCAFS gender research done by Huyer et al. (2020) determined that GSI-inclusive scaling should be intersectional with four gender equality dimensions in relation to climate-smart agriculture, as developed by Tavenner, et al (2020), see figure 4 below. This review used these dimensions to assess progress on the use of gender-responsive approaches in CSVs.

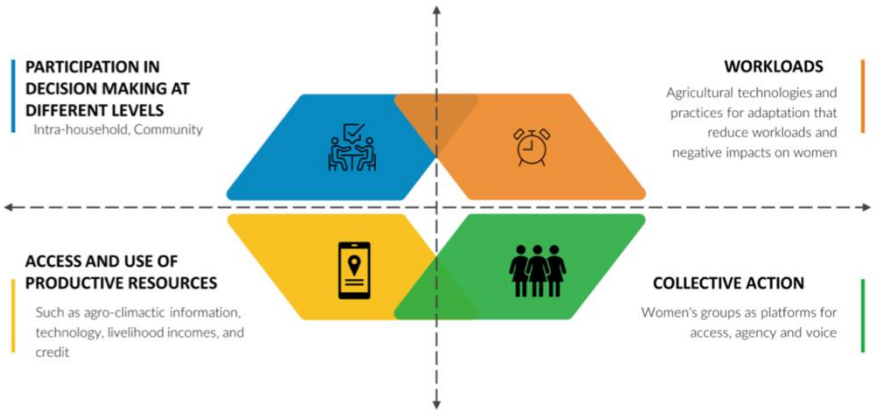

Figure 4. Four gender in/equality dimensions. Source: Tavenner et al. 2020

Specifically, the data that was collected as part of this review included (please see Appendix A for the data collection template):

- Stages of the project cycle where gender or youth was considered: 1) Diagnostic; 2) Design; 3) Targeting/prioritization; 4) Implementation; and 5) Monitoring & evaluation.
- Outcomes across the gender in/equality dimensions of climate resilience (Huyer et al. 2021):

    - Improved participation in decision-making at different levels: intra-household, community, national;
    - Improved control over/access to resources: such as agro-climatic information, technology, credit, and livelihood incomes;
    - Easing of workload: agricultural practices and technologies that decrease women's workloads and drudgery; and
    - Collective action: the use of women's groups as a pathway for improved agency, access, and voice.
- Gender- or youth- responsive CSA technologies and practices

Phase 2: Analysis and Validation of Findings

Upon completion of the portfolio review, an analysis of the data was conducted. Results were disaggregated by region and involved visualizing the distribution of resources from each region across the indicators listed above. In order to validate these findings, fill any knowledge gaps, interviews with CCAFS regional teams were conducted. The interview discussions were focused around the research questions, and then validating the initial findings from our portfolio review. The list of resources reviewed for each region was also shared with the regional staff, and they were able to approve these and send along any additional sources that should be included. A short survey was sent to local partners that worked on the ground with CSV implementation in order to capture their inputs (please see Appendix B for the survey questions).

Results

This section will first discuss an overview of results across the regions, before discussing regionally disaggregated findings from the portfolio review, regional interviews, and the local partner survey as they relate to the research questions.

Descriptive results

The majority of resources included in the portfolio review were journal articles, reports, info notes/briefs, and working papers (figure 5).

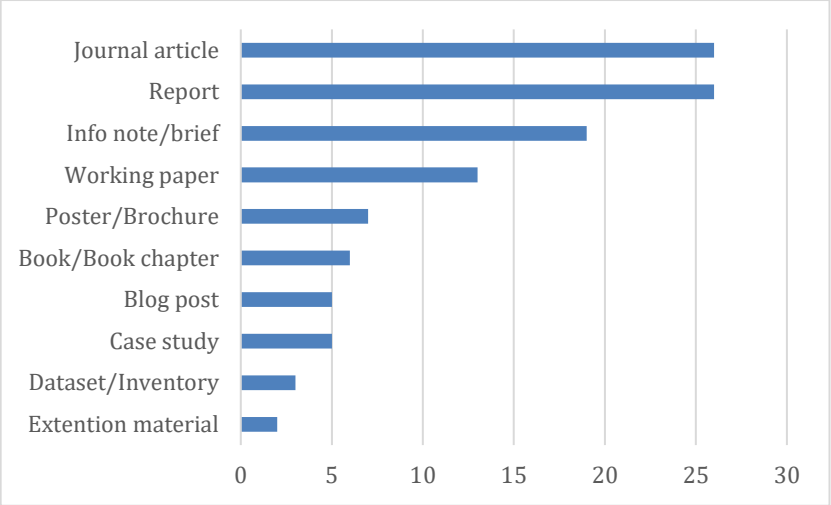

Figure 5. Number and types of resources reviewed across all regions

Resources published between 2013 and 2021 were assessed in this review. However, the majority of resources were from the years 2018-2020 (figure 6).

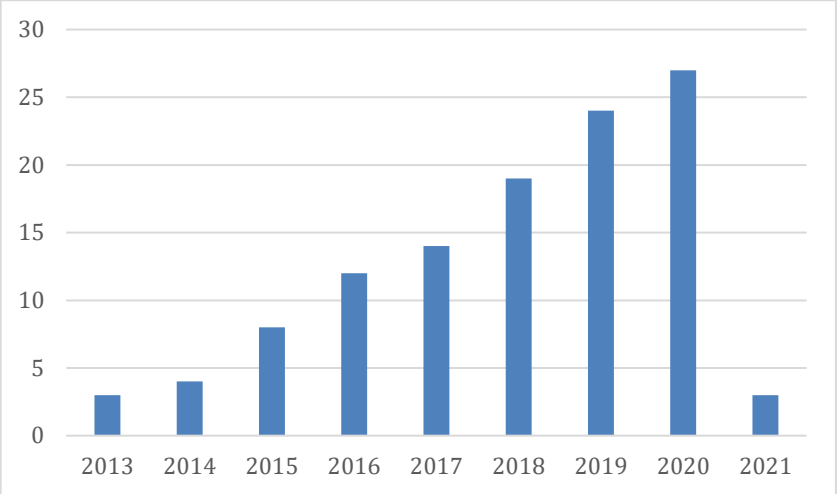

Figure 6. Distribution of the year of resource publications across all regions

As mentioned in the methodology, the portfolio review assessed what stage(s) of the project phase included gender considerations. Project design and the targeting/prioritization of project activities were the stages that most incorporated gender across regions (figure 7). Unsurprisingly, gender inclusion in monitoring an evaluation (M&E) is higher for the regions that collected gender monitoring data (see appendix D).

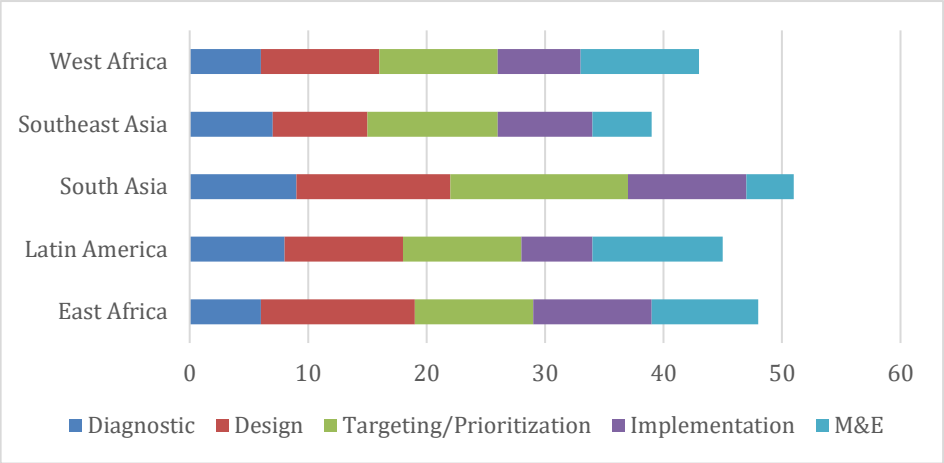

Figure 7. Stages of gender inclusion throughout projects

The stages of youth inclusion were also considered, however, there were significantly less resources that focused on/discussed the integration of youth (figure 8). The project stages that included youth most were targeting/prioritization and implementation.

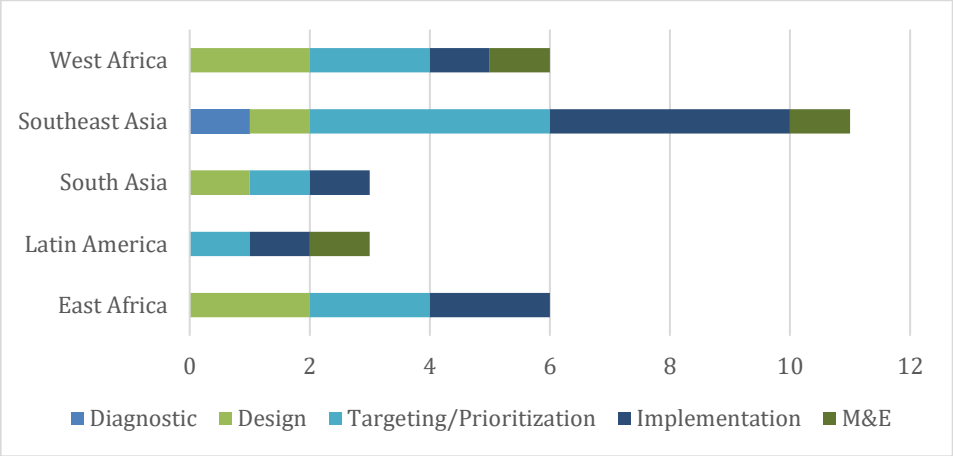

Figure 8. Stages of youth inclusion throughout projects

Lastly, the type of GED outcomes resulting from the projects/interventions in the resources we reviewed can be seen in figure 9 below. It is important to note that these are not necessarily intentional results, rather outcomes of the projects. This review does not claim to be a full reflection of what took place in the CSVs for each region, but what was recorded from the resources included in our review.

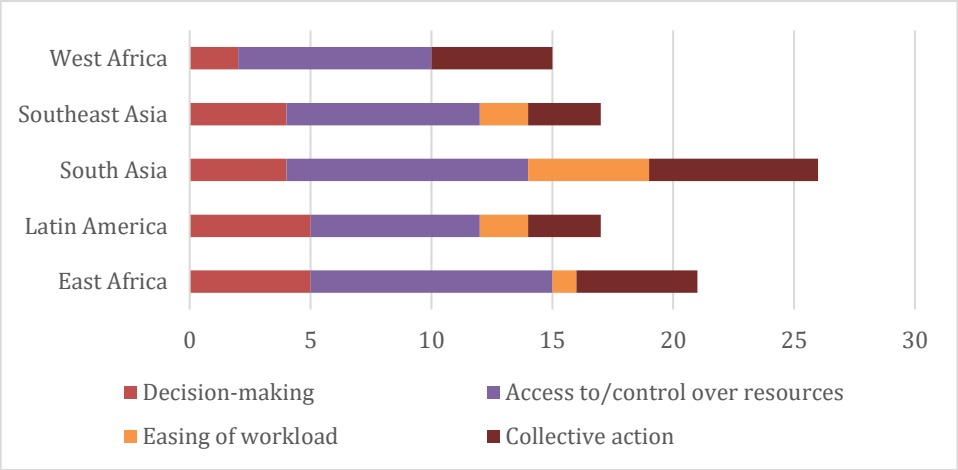

Figure 9. Distributions of outcomes across the gender in/equality dimensions

Improvements in access to/control over resources was the most frequent GED outcome across all regions. An example of this type of outcome in East Africa is how community-based organization membership allowed women to access extension and credit services, which resulted in higher yields and livestock production in Kenya (Birir 2020). In West Africa, the implementation of an innovation platform in the Senegal allowed women to get land for market gardening and to plant priority local fruit trees in a demonstration plot for income-generating activities (Sanogo et al. 2017).

Collective action was the next most frequent GED outcome. In South Asia, the implementation of women-led village climate management committees and custom hiring centers in India increased group-based agency and community participation. They also contributed to leadership and recognition in communities and increased participation of women in trainings throughout project cycle (Chanana et al. 2020). In Southeast Asia, due to their increased access to and involvement in agricultural activities, women in Cambodia are gaining recognition for their roles in family and agricultural development (Eam 2019).

Following collective action, were outcomes regarding women's participation in decision-making. In Latin America, the availability of forecasts/early warning alerts and the existing dissemination channels for the area were helpful for women's decision-making in Guatemala (Mercado et al. 2019). Similarly, in Ghana, climate information services enabled women to make strategic decisions about their farming practices (CCAFS 2021).

The easing of women's workload was the GED with least amount of outcomes across all regions. South Asia had the most outcomes in this area. For example, in India, CSV interventions to reduce women's drudgery included direct-seeded rice, bio-gas and solar pumps (Chanana et al. 2020).

For more information on which CSA practices were adopted where, and what impacts they had, please see Appendix D for a table of CSV monitoring data.

Regional Results

Participatory action research was always at the core of the CSV approach, however, a GSI focus came later for most CSV sites and regions. Youth considerations came even later in CSV activities, and most regions mentioned a need for improved youth engagement. Overall, the incorporation of GSI into CSV activities was a learning process. CCAFS' gender approach continued to change and develop over the years.

East Africa

Gender Inclusion

Regarding GSI inclusion in the CSV interventions aimed at testing and promoting CSA options, there was not a strong focus on gender or youth until 2013. The gender approach became more developed over the course of the program cycle as well. Activities targeting women and youth tried to address the constraints that these groups face, most notably lack of land ownership and financial constraints. During the interview, it was discussed that gender inclusion in East Africa CSVs became more prominent through the implementation of activities that targeted women such as small ruminants, nurseries, and tree planting.
Community-based organizations (CBOs) and farmer groups were important drivers to increase women and youth participation. In East Africa CSVs, there were farmer groups for women, youth, and widows. The formation of groups (collective action) was also prominent in this region and supported the adoption of CSA. The other important aspect was using PAR approaches to gain support for those collective action groups and determine what the needs and demands were along the way. The use of PAR approaches also helped to facilitate a continued dialogue and ensure interventions were demand driven.

Impact on Gender Equality Dimensions

As a result of the CSV activities, positive outcomes across the gender in/equality dimensions included improved access to and control over resources, as well as collective action. Access to and control over resources was the biggest focus in the region given that women face constraints with land ownership and access to finance. An example of collective action and improved access to/control over resources in East Africa is women taking a lead role in community-led breeding programs in Kenya, which came about as a result of practical training through community groups. Women saw improved productivity and market access due to the program, as well as a higher demand for improved animals. The average selling price for

improved breeds nearly doubled, increasing women's income and thus resulting in a positive change in the livelihoods of women in the communities (Ojango et al. 2018).

Gender-responsive CSA

In order to be considered a "gender-responsive" CSA option, the East Africa team noted that the practice or technology had to be sensitive to women's constraints-- the largest of which being land. It was also necessary to keep in mind financial resource constraints given that some CSA practices require an investment. The portfolio review identified the following CSA practices that were popular among women farmers: more efficient fertilizer use, improved planting techniques, cover cropping, smart farms, improved breeds, small ruminants, improved varieties, and crop residue management. Benefits of some of these practices were reduced labor, limited investment costs, improved productivity, and nutritional benefits. Some institutions provided an enabling environment for women to adopt CSA. Women were largely involved in small ruminants, as it did not require much land, and in the planting of legumes and nurseries.

Data on the adoption of the CSA practices tested in the CSVs and its perceived gender outcomes was collected through CSV monitoring. Please see Appendix D for the full table of this data. The perceived gender outcomes which the monitoring collected data on are: 1) unaffected/reduced labor time and 2) improved decision-making/control over CSA resources. In East Africa, monitoring data was collected for the Basona Werena and Doyogena CSV sites in Ethiopia and in Hoima, Uganda (see Table 1).

Youth-responsive CSA

Youth were very particular about what agriculture practices/technologies they were interested in. Horticulture was of interest to youth because there is a specific market for it, and quick financial returns. Youth were also involved in tree planting and agroforestry. Improved breeds, small ruminants, and smart farms were also documented as youth-responsive.

Regarding the prioritizing, testing and scaling of gender and youth responsive CSA, the region shared their experience and what they felt was done well. Regional staff found that interventions which enabled women to reduce constraints such as access to resources were more popular (e.g. Goats or small poultry and smart farms). Overall, it was noted that the uptake of CSA practices and technologies was higher in locations where women are more empowered.

Table 1. CSA practices & technologies with the largest positive effects on gender outcomes as reported by female farmers (above 50% of respondents) in the East Africa CSV sites ("-" indicates when a specific practice was not tested in certain location).

CSA Practice	Doyogena (Ethiopia)		Basona Werena (Ethiopia)		Hoima (Uganda)	
	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Decision-making/control over CSA resources	Unaffected/ Reduced labor	Improved decision-making/control over resources
Agroforestry fallow	X	X	-	-	-	-
Check-dam	-	-	X	X	-	-
Controlled grazing	X	X	-	-	-	-
Crop Residue Incorporation (wheat or barely)	X	X	-	-	-	-
Cut & Carry	X	X	-	-	-	-
Enclosures	-	-	X	X	-	-
Green manure	X	X	-	-	-	-
Gully rehabilitation	-	-	X	X	-	-
Improved breeds (sheep)	X	X	-	-	-	-
Improved varieties (beans)	X	X	-	-	-	-
Improved varieties (cassava)	-	-	-	-	X	X
Improved varieties (potato)	X	X	-	-	-	-
Improved varieties (sweetpotato or beans)	-	-	-	-	X	X
Improved varieties (wheat)	X	X	-	-	-	-
Intercropping (maize beans)	-	-	-	-	X	X
Intercropping (maize cassava)	-	-	-	-	X	X
Percolation pits	-	-	X	X	-	-
Rotation (Cereal/potato-legume)	X	X	-	-	-	-
Terrace with biological measure	-	-	X	X	-	-
Terrace with biological measure (Desho grass)	X	X	-	-	-	-
Terraces	-	-	X	X	-	-
Tree planting	-	-	-	-	X	X
Trenches	-	-	X	X	X	X

Challenges with GSI

The challenges faced when trying to incorporate women and youth largely focused around resource constraints. Getting around issues of land access was a large issue as land is owned by the patriarch of the family. Social and cultural influences also play a role with land, so that added another dynamic to the challenge. The CSVs targeted families as a whole, and some women were able to access a portion of their husband's land to work on. Through collaboration with CBOs, some women's groups were able to lease pieces of land to be able to plant crops on their own.

Intersectionality plays a key role where cultural norms and age limit women's participation in meetings and therefore the project teams had to facilitate discussions while keeping the

dynamics among the genders and age groups in mind. Limited financial resources was also noted as a prominent constraint to women and youth adopting CSA practices and technologies.

East Africa Case Study:

Women Farmers Took Leadership Roles and Increased their income Through Sheep and Goat Production Improvement in Kenya

This activity aimed to improve women's knowledge on and involvement in sheep and goat production. It discusses the role of smallholder women farmers in the adoption of breeding management practices and the implementation of a community breeding program.

Design

- Due to the team's knowledge that there is differential access and control over resources by men and women in the targeted communities, the intervention was approached with a gendered lens.

CSA Targeting/Prioritization

- Women farmers were provided with practical trainings through community groups.

Implementation

- Following these trainings, women started to take a lead role in: implementing planned rotational mating of the improved goats and sheep, performance monitoring through logging details on the animals' performance over time, and influencing the marketing and pricing of the animals.
- An increased demand for improved breeds and an increase in the average selling price for sheep led to a positive shift in the livelihoods of the women involved.
- Improved productivity and market access for sheep and goats was evident.
- A community breeding program which incorporated gender integrated innovative technologies and a stronger product market chain was developed to be implemented in CSVs.
- By involving women in community training activities, animal management practices that contribute to improved productivity and income were readily adopted.

Source: *Innovative use of sheep and goats by women in climate smart villages in Kenya* (Ojango et al. 2018)

Feedback from Local Partners

The CBOs incorporated GSI aspects into their work through women and youth taking the lead in certain CSV activities. Specific examples include taking leadership positions among farmers groups, conducting trainings (farmer-to-farmer extension), table banking, women and youth

involvement in project planning meetings, mobilization of other farmers and implementation of CSA technologies.

Challenges faced by local partners in EA included higher expectations of intervention results from youth who needed money faster. Most of the youth stopped participating in farming activities because they felt it took too long to get income from interventions. Other challenges included lack of capital to implement CSA options and cultural issues like land ownership as most women lacked legal rights to land in the community.

According to the local partners, the most successful examples of gender and youth responsive CSA technologies promoted in the Nyando CSV (Kenya) were savings and loaning schemes (90% is done by women and youth), soil and water conservation technologies (e.g agroforestry, compositing, terracing), planting cover crops and mulching, planting along contours, water harvesting technologies like water pans, establishment of tree nurseries and tree planting, kitchen gardening, improved crop and livestock production, poultry management, and the management of small ruminants.

West Africa

Gender Inclusion

In West Africa, gender was not considered right at the beginning of CSV implementation. First, the team tried to understand the community and prioritize practices based on that knowledge. Three years into the program, the team noticed the lack of gender activities and they implemented new interventions to address gender specifically. Youth was not a focus in the West Africa CSVs.

Women's participation in groups resulted in increased access to trainings, inputs, and income generating activities. For example, in Senegal, the implementation of an innovation platform allowed women to get land for market gardening and to plant priority local fruit trees in a demonstration plot for income-generating activities (Sanogo et al. 2017). In Ghana, women that participated in a women's CSA group felt empowered and willing to contribute to personal and community development issues. They also reported feeling more respected by their husbands. Activities through the women's CSA group have also allowed women to increase their yields and improve processing and storing practices, which have contributed to food security. The CSV sites in Ghana are also becoming participatory learning platforms for climate-smart agriculture In Senegal and Mali, women are involved in gardening which has allowed them to increase their access to and control over financial resources.

Impact on Gender Equality Dimensions

In West Africa, the majority of GED outcomes were surrounding collective action, followed closely by improved access to and control over resources. Not only did the women's CSA group help female farmers foster unity among themselves, but it allowed women to improve their

financial and economic activities. Women also felt like they were more freely able to contribute to personal and community development issues. Some value chain work was done in West Africa, which allowed for the identification of value chains that have opportunities for women and youth, such as rice, cowpea, groundnut, non-timber forest products, goat and sheep.

Gender-responsive CSA

In West Africa, an important criteria for a CSA option to be considered a "gender-responsive" is its impact on women's workload. Even if a practice/technology reaches all three pillars of CSA, if it does not reduce a woman's workload it might not be a good option and may not be widely adopted. The portfolio review identified the following CSA practices that were popular among women farmers: vegetable, cowpea, goats/sheep and non-timber forest product value chain participation; improved postharvest handling, processing and storage practices; agroforestry; use of improved varieties; home gardening; intercropping; and gender-responsive CIS.
Data on the adoption of the CSA practices tested in the CSVs and its perceived gender outcomes was collected through CSV monitoring. Please see Appendix D for the full table of this data. The perceived gender outcomes which the monitoring collected data on are: 1) unaffected/reduced labor time and 2) improved decision-making/control over CSA resources. In West Africa, monitoring data was collected in the Cinzana (Mali), Fakara (Niger), and Kaffrine (Senegal) CSV sites (table 2).

Table 2. CSA practices & technologies with the largest with the largest positive effects on gender outcomes as reported by female farmers (above 50% of respondents) in the West Africa CSV sites ("-" indicates when a specific practice was not tested in certain location).

CSA Practice	Lawra-Jirapa (Ghana)		Kaffrine (Senegal)		Fakara (Niger)		Cinzana (Mali)	
	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources
Contour bunds	-	-	-	-	-	-	X	X
Crop residue incorporation		X	-	-	-	-	-	-
Earth bund		X	-	-	-	-	-	-
Farmer Managed Natural Regeneration	-	-	X	X	X	X	X	X
Half moon	-	-	-	-	-	X	-	-
Home garden diversification	X	X	-	-	-	-	-	-
Improved seed (sorghum, millet, sesame, fonio)	-	-	-	-	-	-	X	X
Improved varieties	X	X	-	-	-	X	-	-
Improved varieties (millet, sorghum,cowpea, okra, sena obtusifolia)	-	-	-	-	X	X	-	-
Improved varities (maize, millet, groundnut)	-	-	X	X	-	-	-	-
Inorganic fertilizer	-	-	X	X	-	-	X	X
Integrated nutrient management		X	-	-	-	-		X
Intercropping	X	X	-	-	X	X	X	X
Manure		X	X	X		X		X
Manure + inorganic fertilizer	-	-	X	X	-	-	X	X
Reduced tillage	X	X	X	X	-	-	-	-
Rotation	X	X	-	-	-	-	-	-
Ties ridges		X	-	-	-	-	-	-
Tree planting		X	X	X	X	X		X
Zai/planting pits		X	-	-		X	-	-

West Africa Case Study:

Climate-Smart Women's Groups Improved Adoption of CSA Practices

CSV projects in West Africa used participatory action research approach to test combinations of innovations to achieve the pillars of climate smart agriculture. A focus on the role of women, youth, and marginalized groups in benefits sharing and decision-making was viewed as vital.

Diagnostic

- The vulnerabilities of gender-differentiated groups were mapped in order to create a baseline upon which to compare impacts of the project activities.

Design

- Gender-specific activities were a focus of the project.
- Gender-disaggregated focus group discussions were held.
- The entirety of the project was approached in a participatory manner.

CSA Targeting/Prioritization:

- Gender-sensitive activities for women that were implemented included: vegetable diversification, planting of fruit trees, improved varieties, nutrition education, and village savings and loan scheme.
- Meetings, trainings, and fieldwork all involved some women and youth.

Implementation

- Climate-Smart women groups were trained on the use of stone lining, compost, stone bounding for soil and water conservation and they have adopted these practices for rice and maize production on fields that are prone to gully erosion.
- The project implemented interventions to provide immediate short-term income and food benefits to resource-poor women in the communities, allowing farmers to plant trees that would generate other substantial benefits in the longer-run.
- The project has been trying to support the community's recognition of women and youth's entitlement to their own assets by working with chiefs and elders, encouraging men and women to participate in joint decision-making, and supporting continued dialogue about women and youth's role in agriculture.

Source: *Towards developing scalable climate-smart village models: approach and lessons learnt from pilot research in West Africa* (Bayala et al. 2016)

Challenges

Scaling CSA to women and youth was found to be difficult in West Africa. However, climate information services had success with scaling. For example, CIS was scaled in Senegal through a United States Agency for International Development (USAID) funded project. Another challenge in WA was engaging youth, as many of them did not have an interest in agricultural activities.

Youth's lack of access to land is a constraint. Regarding gender, women's lack of access to equipment, training, inputs and credit are challenges.

Feedback from Local Partners

The local partner survey revealed that an emphasis was placed on interventions that were likely to be more beneficial to women and resource-poor individuals. These interventions included nutritional education, village savings and loans groups, and income generating activities for short-term rewards. Additional activities that promote women's involvement include gardening, tree propagation (grafting), fruit tree planting, tree products processing, value added postharvest handling, dry season supplementary activities, and nutrition and health information. The promotion of improved crop varieties and off-season crop market-gardening was also successful.

The partner expressed that land property rights remain a challenge limiting possible practices and technologies to be adopted by women and youth.

Latin America

Gender Inclusion

In Latin America, a family-based approach was taken in order to engage the entire household, however a focus on gender and youth increased as time went on. However, the regional team mentioned that improved guidance on gender inclusion would have been helpful during the project design. Youth was not explicitly considered in the beginning either. However, once youth expressed interest in getting involved in CSVs initiative, the regional program started to implement activities that would allow them to play a key role within the community.

Impact on Gender Equality Dimensions

In the LAM CSVs, women's empowerment was realized in terms of improved participation in decision-making and leadership initiatives within the CSVs. Women's leadership in the implementation of climate-resilient home gardens positioned them well within the community, and women reported that they were feeling more empowered as far as the voice they had within their household and community. Some CSA practices were also able to increase women's income, such as climate-resilient home gardens. Regarding collective action, women from the Cauca CSV reached out to organizations and local governments in order to have their products recognized as organic and sustainable at markets. This allowed them to be well positioned within their community and at the municipality level. In Cauca, local formal and informal organizations provided farmers with information and resources and helped to secure land tenure and they created spaces for collective action (Devereux 2014).

Gender-responsive CSA

For a practice or technology to be considered "gender-responsive" in LAM, it had to respond to the needs/demands of women. Practices that are accessible to women were more popular, for example the home gardens, which were located right at their houses. CSA that can improve nutrition was also found to be attractive to women. The portfolio review identified the following CSA options as being popular among women farmers: home gardens, gender-responsive agroforestry and silvopastoral systems, water harvesting, irrigation, small livestock production, improved varieties, and organic fertilizer use.

In LAM, empowering women also increased the chances of scaling CSA throughout the community. Workshops also contributed to women's empowerment through knowledge enhancement. Responding to the local context was also important. For example, in the Guatemala CSV, where male migration is high, family level adaptation planning and women focused activities were implemented.

Data on the adoption of the CSA practices tested in the CSVs and its perceived gender outcomes was collected through CSV monitoring. Please see Appendix D for the full table of this data. The perceived gender outcomes which the monitoring collected data on are: 1) unaffected/reduced labor time and 2) improved decision-making/control over CSA resources. In Latin America, monitoring data was collected in the Tuma-La-Dalia (Nicaragua), Cauca (Colombia), Olopa (Guatemala), and Santa Rita (Honduras) CSV sites (table 3).

Table 3. CSA practices & technologies with the largest positive effects on gender outcomes as reported by female farmers (above 50% of respondents) in Latin America CSV sites ("-" indicates when a specific practice was not tested in certain location).

CSA Practice	El Tuma-La Dalia (Nicaragua)		Cauca (Colombia)		Olopa (Guatemala)		Santa Rita (Honduras)	
	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources
Agroecological management	-	-	-	-	X	X	X	X
Cisterns and tanks	-	-	-	-	X	X	-	-
Crop residue incorporation	X	X	X	X	-	-	-	-
Drip irrigation	-	-	-	-	X	X	-	-
Home garden diversification	X	X	X	X	X	X	X	X
Home gardens diversification (+ water harvest)	-	-		X	X	X	X	X
Improved and biofortified varieties	X	X	-	-	-	-	-	-
Improved Cookstoves	-	-	-	-	X	X	-	-
Improved Pasture	-	-	-	-	-	-	X	X
Improved varieties (beans)	-	-	X	X	X	X	X	X
Improved varieties (maize)	-	-	-	-	-	-	X	X
Intercropping	-	-	X	X	-	-	-	-
Living Fences or Hedgerows	-	-	X	X	X	X		
Organic fertilizer	X	X	X	X	-	-	-	-
Rainwater harvest	-	-	X	X	X	X	X	X
Rainwater ponds for irrigation	-	-	-	-	X	X	X	X
Reduced tillage	-	-	-	-	X	X	-	-
Reservoir for fish production and irrigation	-	-	-	-	X	X	X	X
Rotation	-	-		X	X	X		
Shade management	-	-	-	-	-	-	X	X
Solar dryer	-	-	-	-	-	-	X	
Terraces	-	-	-	-	-	-	X	X
Tree planting		X	-	-	X	X	X	X
Trenches	-	-	-	-	X	X	-	-
Water protection on-farm	X	X	-	-	-	-	-	-

Youth-responsive CSA

There was less information on CSA practices that were popular with the youth, but water harvesting, bio-fertilizers and contour trenches were popular among young farmers in Guatemala. In Honduras, young farmers reported higher adoptions of water harvesting, bio-fertilizers, home gardens, shade management, living barriers and water reservoirs for irrigation.

Challenges with GSI

The largest challenge LAM faced regarding GSI inclusion was limited knowledge on how to best address gender and youth. Since the GSI approach continued to develop and evolve over the course of the CCAFS program, it has been a learning process. Not having experts on gender and youth involved in the project was also a challenge.

Feedback from Local Partners

Local partners expressed that gender and social inclusion were taken into account in the CSVs through taking a **family oriented approach** in order to include the family in all processes and define agriculture roles for all members. For practices that were promoted in the CSV, they would take into account how it would impact the family as a whole. Additionally, one local partner mentioned that they requested equal participation of men and women farmers.

Challenges faced by the local partners included women and youth participation, as well as reaching a point of agreement in knowledge among youth, women, and men. Additionally, (local) language barriers and families' financial constraints posed challenges. Regarding what worked well, local partners felt that vegetable gardens close to homes were successful because they were able to facilitate work for youth and women. Livestock and fish production were also noted as CSA options that worked well. Lastly, another successful practice was involving youth in processes related to adaptation plans, which allowed them to develop new information technology skills.

Youth Engaged in Cauca CSV through Local Partnerships and School Garden

In the Cauca, Colombia CSV, multiple activities were implemented in order to engage youth of various ages.

Design

- The CSV focused on implementing activities that improved the quality of rural life with a particular emphasis on women.
- The CSV process had activities focused on youth empowerment.

CSA Targeting/Prioritization

- Activities through the Colombian Rural Mission engaged youth in order to make the countryside more attractive to them, as most youth migrate to cities.
- Women and men had equal opportunities to join the voluntary implementation of new practices when they were introduced.
- Some CSA practices were identified, adjusted, and promoted to be implemented, especially by women.

Implementation

- As a result of the Colombian Rural Mission activities, the vision has changed for youth in the community. Now, while they still want to study in the city, but now they focus on the ways they can help their territory by studying environmental engineering or agriculture.
- Young people have said no to planting and involvement in narco-trafficking activities near the territory since they have legal alternatives for production.
- A garden was built at a local kindergarten in order to teach kids from a young age how to take care of their vegetables and also to foster healthy diets.
- It has been promoted so that young women start innovative, productive ventures such as developing organic tomato crops

Source: *Cauca Impulsa La Agricultura Sostenible Adaptada Al Clima En Colombia (Popescu 2018)*

South Asia

Gender Inclusion

In South Asia, the team ensured that gender was integrated in all aspects of CSV projects. At each phase of CSV, they considered a gender aspect. When they started designing the CSV projects, they conducted baseline surveys in selected villages in order to identify gender issues and collect sex-disaggregated data before they designed the CSV. They also held focus group discussions in the selected villages. The discussion groups were all female, all male, or integrated male/female groups. These helped the team identify gender-disaggregated priorities for CSA options.

Next, there were implementation priorities. In one area, they introduced CSA options as a pilot, then tested and evaluated these all while taking gender considerations into account. Another aspect that was important in the CSVs was training and capacity building, including gender-disaggregated participation. South Asia also worked with many women's groups, which was a key component to achieving gender outcomes. They also tried to integrate gender into all activities and have both men and women participate. While most of the farmers they worked with were 'young' (below 35 years of age), youth was not highlighted as a specific group, and did not receive too much focus.

Impact on Gender Equality Dimensions

Regarding CSV impact on gender in/equality outcomes, there was not a systematic method for achieving these outcomes; they resulted organically and were not necessarily intentional. Capacity building through CSV activities improved women's participation decision-making. Village climate management committees (VCMCs) and custom hiring centers led by women increased group-based agency and community participation, thus increasing leadership and recognition in communities as well as increasing the participation of women in trainings throughout project (Chanana et al. 2020). CSVs also increased access to inputs through local institutions, improved access to climate and market information, and trained women in entrepreneurial activities to increase incomes. Easing of workload had the most positive outcomes in South Asia due to the implementation of CSA options that reduce women's drudgery in CSVs, such as direct-seeded rice, bio-gas and solar pumps (CCAFS & BAIF 2020).

It was expressed that women are real agents of change and can bring a lot of their knowledge and motivation to CSVs.

Gender-responsive CSA

The portfolio review identified the following CSA options as being gender-responsive or popular among women farmers: direct seeded rice, zero tillage machines, laser land leveling, green manuring, crop harvesters, weeder, solar pump irrigation, post-harvest management practices, improved varieties, integrated home gardens, crop rotation, integrated nutrient and pest management, climate-smart housing for livestock.

Data on the adoption of the CSA practices tested in the CSVs and its perceived gender outcomes was collected through CSV monitoring. Please see Appendix D for the full table of this data. The perceived gender outcomes which the monitoring collected data on are: 1) unaffected/reduced labor time and 2) improved decision-making/control over CSA resources. In South Asia, monitoring data was collected in Barisal and Khulna (Banglasdesh), Bardiya, Mahottari and Nawalparasi (Nepal) CSV sites (table 4).

Table 4. CSA practices & technologies with the largest with the largest positive effects on gender outcomes as reported by female farmers (above 50% of respondents) in the South Asia CSV sites ("-" indicates when a specific practice was not tested in certain location).

CSA Practice	Barisal (Bangladesh)		Khulna (Bangladesh)		Bardiya (Nepal)		Mahottari (Nepal)		Nawalparasi (Nepal)	
	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources	Unaffected/ Reduced labor	Improved decision-making/control over resources
Fish microhabitat		X		X	-	-	-	-	-	-
Fish microhabitat (home)		X	-	-	-	-	-	-	-	-
Homegarden diversification (+ Solar Irrigation)	-	-	-	-		X	X	X	X	X
Improved seed	-	-	-	-	X	X	X	X	-	-
Improved seed (maize)	-	-	-	-	-	-	-	-		X
Improved seed (rice)	-	-	-	-	-	-	-	-	X	X
Integrated Pest Management	-	-	-	-	-	-	X	X	-	-
Intercrop + improved seeds	-	-	-	-	X	X	-	-	-	-
Manure	-	-	-	-	-	-	-	-	X	X
Rainwater harvest	-	-		X	-	-	-	-	-	-
Reduced tillage	-	-	-	-	X	X	X		X	
Sprinkler Irrigation	-	-	-	-	-	-	X	X	-	-
System of Rice Intensification	-	-	-	-	X	X	-	-		X
Vegetable tower		X		X	-	-	-	-	-	-

Challenges

The main challenges faced in South Asia included a weak understanding of gender considerations in agriculture and difficulty recruiting farmers for capacity building. Due to the fact that the demonstration of CSA technologies did not provide immediate results, many farmers were hesitant to adopt new technologies and practices. Restrictive social norms in some areas also made it difficult to involve women in the CSVs. For instance, in one of the districts in India, women's interaction with the field team was low due to social limitations

making it difficult to increase their involvement in project activities. A continuous interaction with their husbands and families to stress the importance of women's role in the activities was undertaken to facilitate their participation in the process.

Feedback from Local Partners

Local partners that participated in the survey all expressed that gender and youth considerations were taken into account in CSVs. Specifically through prioritizing, testing, and disseminating CSA options, as well as to a certain extent with climate information services. Challenges included lack of decision-making power among women and youth, which impacted the identification and promotion of CSA options relevant to different actors in the farming community. Another notable challenge was youth's lack of interest in agricultural activities. Convincing farmers to make the switch to CSA systems and stakeholder's inability to visualize the benefits of GSI inclusion were also noted as challenges.

According to local partners, the most successful examples of gender and youth responsive CSA were: crop residue management, water saving technologies, efficient N-management, mechanical transplanting of rice, and solar based irrigation. It was noted that solar-based irrigation, which considered the aspects of both gender and youth, had a drastic impact on the system. The interventions have brought various changes in the women and youth as they are directly involved during the initial stage to implementation and sustainability.

South Asia Case Study:

Women's Empowerment and Reduced Drudgery Through Participatory Approach to CSA Adoption

A USAID funded project related to scaling of CSVs used an integrated participatory approach to empower women farmers through various activities and technologies. Conscious efforts were taken throughout all stages of project design and implementation to include women farmers not just as active participants, not solely beneficiaries. The participation of women farmers was encouraged throughout through community-based groups.

Diagnostic

- A baseline assessment was conducted to understand the dynamics of the communities in each District where the project was taking place.

Design

- The baseline assessment informed the design of a diversified set of interventions for women farmers.

CSA Targeting/Prioritization

- The project enhanced women's access to CSA technologies through the use of gender-inclusive techniques such as Direct Seeded Rice (DSR), biogas and weeder which significantly reduce the drudgeries of women farmers.

Implementation

- The project created a platform for women to improve agency, confidence and decision-making at the community level while pursuing income generating opportunities.
- Custom hiring centers have allowed women to earn income, develop their entrepreneurial skills and contribute to their improved agency.
- Membership in village climate management committees allowed women to develop leadership and social skills.
- More than 4,500 women farmers directly benefitted through the program. A total of 318 women farmers initiated entrepreneurial activities post capacity building exercises resulting in 182 individual and group-based enterprises.

Source: *Gender Integration for Inclusive Adaptation to Climate Risks* (CCAFS & BAIF 2020)

Southeast Asia

Gender Inclusion

In Southeast Asia, the level of GSI integration very much varies by country. In the My Loi village in Vietnam, the Agro-Climate Information Services (ACIS) program targeted women and youth. My Loi also had an active youth union group, which increased youth participation in the CSVs.

In Vietnam there are also pre-established groups for both women and youth, so that made it easier to involve them. In the Philippines, women were targeted with a small-scale livestock program. However, in other countries, gender and youth were only considered at the time of design or during monitoring and evaluation.

Impact on Gender Equality Dimensions

Findings from the portfolio review show that improved access to and control over resources was the GED with the most positive outcomes. A case to note on this front is that women-led livestock value chains in the Philippines resulted in control over how to spend the income generated from it (IIRR 2019). Additionally, women expressed cost-savings and increased productivity as benefits of the adopted CSA practices in Vietnam (Vernooy et al. 2018). Regional staff noted the impact that CSVs had on improved participation in decision-making due to participatory methods and climate information service (CIS) provision. This CIS provision aided female farmers with making informed decisions about their farming practices.

Gender-responsive CSA

Regarding 'gender -responsive' CSA options, in SEA most of the successful CSA practices that targeted women or youth were those that have a high economic benefit. In Vietnam, the CIS was very helpful because women are in charge of farm activities, so the information allowed them to improve their decision-making. Additional CSA options that were popular among women farmers included: small livestock, improved native pig breeds, alternate wetting and drying (AWD), crop diversification, improved varieties, crop diversification, and low-input agroforestry activities.

What worked well for prioritizing, testing and scaling gender and youth responsiveness of CSA technologies was different for every country given that each CSV was largely led by local partners. However, the Agro-climate Information Services for Women and Ethnic Minority farmers in South-East Asia (ACIS) program in Vietnam and the small-scale livestock intervention in the Philippines are examples of success. Also in the Philippines, the use of coastal agricultural systems and coconut-based farming systems offered new opportunities for women to implement sustainable livelihood options that increased their income (Bayot et al. 2021). These system interventions were recommended for future gender-sensitive CSA interventions.

A guidance video from Southeast Asia was recently published, which documents how to integrate GSI into CSV establishment (CCAFS SEA 2021). Starting with encouraging the support and participation of both men and women, the elderly and youth, and people with disabilities. The video notes that it is important to engage with these groups from the beginning to ensure the design of the CSV takes their needs into account. The video also called for evaluating CSA

options within the lens of each group's role and abilities and making sure groups have equal voices in the selection of CSA options (CCAFS SEA 2021).

CSV monitoring data on perceived gender outcomes was not collected for Southeast Asia.

Youth-responsive CSA

Less information was available on youth-responsive technologies in the portfolio review, however, youth were engaged with art and climate change activities, technology exhibits, and trade fairs in Vietnam. Specifically in the My Loi CSV in Vietnam, youth were engaged through a social mobilization activity. Through the project the team was able to identify that agricultural products with stable market pathways are attractive to youth (Smith 2017). The My Loi CSV site also developed a strong partnership with the local Youth Union, which will be essential when trying to help the next generation of farmers adapt to climate change (Smith 2017).

Challenges

The lack of gender expertise was a challenge for CSVs in Southeast Asia. In Vietnam, where CSVs were led by the World Agroforestry Center (ICRAF), there was a gender expert who provided high value with regards to GSI. At other CSVs, which were led by other partner organizations, gender inclusion was not always a focus.

Feedback from Local Partners

According to survey respondents, gender and youth were integrated in the CSVs through the implementation of equal participation standards for men and women in CSA activities, ensuring youth make up one third of participating farmers, as well as engaging elders, poor, women, youth, and individuals with disabilities in the process to prioritize CSA. Women and men were also separated for certain activities. In Laos, academic institutions (Savannakhet University) were targeted for youth engagement to conduct CCAFS funded bachelor's degree theses. These theses mainly focused on identifying information gaps in CSVs. Additional funds were provided to establish school gardens run by students to test out CSA options with the idea that these practices would be replicated by farmers in the field.

Regarding what worked well, local partners felt that PAR methods and social components (village library, farmer interest groups, educational contests) activated and leveraged the cooperation of farmers in working together to make their community more climate resilient. For example, women did very well in environmental protection and cooking contests. Young people performed well with smart phones in searching for useful information and solutions for CSA implementation. Training on CSA options provided technical knowledge to improve climate adaptation and resilience, and CSV cross visits were an empowering tool for enhancing

motivation and building capacities. In Laos, the community-based seed system for rice was noted as the most inclusive and responsive CSA technology implemented in the country as it presented a seamless overview of interaction between actors and their roles during land preparation, harvest, post-harvest and the overall value chain interaction.

Challenges faced in the region included women and youth's hesitancy to share their thoughts/ideas in a public setting. This was also mentioned in regards to how time consuming the participatory process can be; the process took longer in order to gain their participation. However, after the CSV provided opportunities for women and youth to share their experiences and present their work results in meetings/workshops, they gained confidence and were more knowledgeable and communicative. In Laos, incorporating gender and youth considerations in the context of CSA was relatively a new concept for the government. As a result, there was an additional investment in education, knowledge and information sharing focused on the importance of inclusion.

Southeast Asia Highlighted Case Study:

ACIS Program Reduced Women's Labor and Improved Their Participation in Decision-Making

The Agro-Climate Information Services (ACIS) for Women and Ethnic Minority Farmers in Southeast Asia Project emphasizes that actionable agro-climate information starts with—and responds to—gender-based needs of farmers, integrated at all stages of the value chain.

Diagnostic

- The vulnerabilities of gender-differentiated groups were mapped in order to create a baseline upon which to compare impacts of the project activities.

Design

- Gender-specific activities were a focus of the project.
- Gender-disaggregated focus group discussions were held.
- The entirety of the project was approached in a participatory manner.

CSA Targeting/Prioritization

- Participatory Scenario Planning meetings so users can co-design the agro-advisories.
- Women and men were given equal opportunities to join new practices when they were introduced.

Implementation

- Women gained more influence in agricultural decisions both at home and in the community since the advisories were discussed in interest or saving groups.
- Improved CIS resulted in better resource use efficiency, including less labor.
- The project had both male and female facilitators, which helped to promote gender equality.
- Compared to control sites, the agro-climate information services helped to reduce yield variability.

Source: *Participatory agro-climate information services: A key component in climate resilient agriculture* (Simelton et al. 2019)

Discussion

While each region had its own unique experiences with CSVs, as discussed in the previous section, there are common, cross-cutting themes that can be distilled.

GED Outcomes

Improvements in women's access to/control over resources, as well as women's collective action, were the most common GED outcomes across all regions. Improvements in women's decision-making also occurred in all regions, but had a bit fewer outcomes. The easing of women's workload had the least amount of outcomes, and only occurred in four regions.

Gender Considerations in Program Design

One theme was a lack of gender consideration right from the planning stage. For most of the regions, gender considerations were taken into account as the project progressed and it was a learning process. In a couple cases, regions realized the lack of female involvement after a couple years of the project and then designed interventions to address that disparity. Some regions felt unsure of how to best integrate gender into the project design, as there was limited guidance on this at the program onset. Going hand in hand with the limited guidance, lack of gender expertise on the project team was also a challenge.

Minimal or Late Focus on Youth

Perhaps the most consistent theme across regions is the lack of focus on youth. While many regions did engage youth in some way, it was certainly not a focus, often did not happen until later in the program cycle, and was not systematically designed. For example, in Latin America the team tried to engage youth once they saw they had some interest in participating in CSV activities. However, youth-specific activities and engagement were not included in the program design.

What is Gender-Responsive CSA?

While the specific CSA practices and technologies that are selected and tested in CSVs are context-specific, they need to be sensitive to women's needs and constraints in order to be considered gender-responsive. When asked what criteria a CSA option needed to meet in order to be considered gender-responsive, multiple regions said that it needed to respond to women's needs and demands, as well as be sensitive to their constraints. While the needs and constraints of women will differ across regions, it will be essential to keep these in mind when designing projects and interventions. However, across regions there were CSA option characteristics which were found to be gender-responsive/popular among women farmers.

One of which were practices that required a low investment and/or had a high economic benefit. Since women often face financial constraints, CSA options of this nature can be attractive to female farmers. Additionally, CSA options that reduce labor were mentioned by multiple regions as an important consideration for gender-responsive CSA options.

One publication in this review (Khatri-Chhetri et al. 2020) developed an approach to identify CSA options that can potentially reduce labor in areas that face significant climate risks. This study, conducted in Nepal, found that the following CSA options could potentially ease women's labor burden, as well as improve productivity and farm income: direct seeded rice (zero tillage and low tillage using machine), laser land leveling, system of rice intensification, and green manuring (Khatri-Chhetri et al. 2020).

Along the lines of responding to women's demands, synergies between CSA options and food security benefits were also discussed. Across multiple regions, CSA practices and technologies that also improved food security were popular among women. Additionally, it is necessary to explain the benefit of CSA technologies and practices that are being promoted, so as to encourage adoption. Otherwise, women may not feel an incentive to change their current practices.

Youth-Responsive CSA

Regarding youth-responsive technologies and practices, it was mentioned in multiple regions that it is also necessary to be sensitive to youth's constraints. Multiple regions also mentioned difficulty trying to engage youth due to their lack of interest in agriculture. Takeaways on what may improve youth's engagement are CSA options that are of high (and short term) economic benefit and that has a clear market for the product. However, it is clear that more research is needed on these areas.

The Importance of Collective Action

Collective action and working with local institutions was noted as a benefit to CSV projects in all of the regions. In East Africa, partnership with CBOs encouraged women and youth participation in CSV activities. Women's groups in West Africa were also able to increase access to trainings and inputs. Additionally, the women's CSA group in Ghana empowered women and supported them to contribute to personal and community development issues.

In South Asia, working with women's groups were noted as being key in achieving gender outcomes. Specifically, women agency and leadership improved through membership in local institutions and women-led groups improved women's recognition in communities.

Recommendations

Since the lessons learned from the CSV project should be used to inform future projects, it was important to reflect on what has been done and what could be improved on in the future. As such, interviewees and survey respondents were also asked about recommendations for what should be done differently in the future. An overarching recommendation would be to address the enabling/constraining environment to help overcome structural barriers (e.g access to finance; land, etc.) through strategic partnerships for a more systemic action aiming at fostering adoption of gender responsive CSA options.

East Africa

Have gender-disaggregated focus group discussions in order to have a more conducive environment for women's participation. Approaching projects at the landscape level, not just the household level, and taking into account the full picture of the community and area of focus. Increased involvement of local administrative leaders in addition to the village leaders could be beneficial. In addition, providing market linkages and assurance of premium prices would be very beneficial and attractive to farmers. An assured market through some kind of contract farming arrangement if possible could be great-- not just for women and youth but men as well.

West Africa

The regional staff from West Africa recommended that more future projects focus on value chains, and specifically the identification of activities for women-sensitive value chains to improve women's involvement. The survey respondent from West Africa recommended that future work should expand on the domain of possible activities for women and youth, similarly to what men were capable to select because of their better land proprietary rights.

Latin America

The importance of using the available gender information/guidance as much as possible to inform future projects was stressed as a recommendation. The significance of connecting the various local partners within the territory was also noted. Other recommendations included conducting more monitoring and evaluation throughout the project. Additionally, more CSA options that will attract youth, and more reflection on youth migration as well as investing more time towards understanding the socio-cultural dynamics of communities were recommended.

South Asia

Having a more systematic approach to integrating gender, as opposed to an organic one, as well as more systematic measurement of outcomes was recommended. It was also noted that practitioners should aim to use as many tools and published approaches as possible to make the project more scientific. Lastly, it is necessary to improve how findings are communicated to policy-makers and other stakeholders, including the impacts of the CSVs, in order to develop new partnerships, scale out more CSVs, and also bring new financial sources. Survey respondents from South Asia also provided their recommendations. One partner noted the importance of generating and sharing information on the benefits of GSI inclusion with stakeholders. Another partner recommended improved knowledge and skill development. A partner also noted that the bundling of CSA options are required to address multiple climatic risks and to commercialize the agriculture sector so that it can be considered as an enterprise and can attract and engage youth.

Southeast Asia

It was recommended that there be more trainings for project implementers on GSI, and that youth are actively engaged from the beginning of the project. Conducting a market and economic analysis was also recommended, as well as the use of a multi-criteria ranking system that integrates gender and youth.

Conclusion

As evidenced by the different experiences of each region, the best way to integrate gender and youth considerations into the process of CSA adoption and scaling will be context-specific. Each region identified their own successes in terms of gender-responsive interventions/CSA options. Improvements in women's access to/control over resources, as well as women's collective action, were the most common GED outcomes, which occurred in all regions. Improvements in women's decision-making also occurred in all regions, but had fewer instances. The easing of women's workload in CSVS also had significantly fewer occurrences than the other GEDs, and only occurred in four regions.

There are also cross-cutting takeaways that can be useful no matter the context. CSA options that are sensitive to the needs, demands, and constraints of women and youth will be more successful in regards to adoption. Additionally, taking GSI considerations into account from the very beginning of the project design, as well as having a GSI expert involved can improve the gender and youth responsiveness of the program. In addition, PAR is a key approach for improving women and youth's participation in interventions. Lastly, collective action and local partner engagement has proved to essential in the CSVs in regards to gender outcomes.

Appendix

Appendix A: Data Collection Template

Title	Description	PAR processes	Data collected/ referenced	Stage(s) of inclusion		Action Area 1	Action Area 2	Action Area 3	Action Area 4	GED1: decision-making	GED2: control/access to resources	GED3: Easing workload	GED4: collective action	CSA practices and technologies		Key Outcomes		Limitations/ Considerations	URL	Author	Year	Region	Country	Resource type
				Gender	Youth									Gender-responsive	Youth-responsive	Gender	Youth							

Appendix B: Survey Sent to Local Partners

1. Name
2. Designation
3. Organization Name
4. Organization type (i.e. NGO/INGO, research organization, government, private sector, etc.)
5. CSV Name
6. The Climate-Smart Village approach developed by CCAFS has been an innovation. PAR played a key role to support the efforts towards co-developing/identifying, testing and promoting the adoption of CSA options at scale. In your experience, how was the use of Participatory Action Research different in the context of the CSV work, and to what extent were Gender and Social Inclusion (GSI) aspects included in the process?
7. What have been the main challenges when using PAR approaches in the CSVs?
8. What do you feel was done well when using PAR approaches and, more specifically, incorporating GSI aspects with the specific aim to support CSA adoption? What were the key successes?
9. Based on your experience, what should be done differently in the future regarding the use of PAR to promote adoption of CSA practices/technologies with an emphasis on Gender and Social Inclusion?
10. Did you incorporate gender and youth considerations in the identification, prioritization, testing and/or dissemination of CSA practices/technologies and/or climate information services? If yes, please explain how.
11. What have been the main challenges when trying to incorporate gender and youth considerations into the identification and promotion of CSA options?
12. What do you feel worked well? Can you provide the most successful examples of gender and youth responsive CSA technologies promoted in your specific CSVs?
13. Based on your experience, what should/could be done differently in the future regarding the prioritization, testing or promotion of gender and youth responsive CSA options?

14. As part of these reports we will also be highlighting some case studies from each region. Are there any success stories that you'd like to share? (If there is a resource written on it, feel free to answer with the title and author and/or the link to the document).

Appendix C: List of Resources Reviewed by Region

Region	Citation	Link
East Africa	Bamanyaki P, Muchunguzi P. 2020. Exploring gender- and nutrition-sensitive climate-smart agriculture value chains for Nwoya District, Northern Uganda. CCAFS Info Note. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111220
East Africa	Murray U, Gebremedhin Z, Brychkova G, Spillane C. 2016. Smallholder farmers and climate smart agriculture: Technology and labor-productivity constraints amongst women smallholders in Malawi. Gender, Technology and Development 20(2):117–148.	https://cgspace.cgiar.org/handle/10568/78457
East Africa	Beuchelt TD, Badstue L. 2013. Gender, nutrition- and climate-smart food production: opportunities and trade-offs. Food Security 5(5): 709-721.	https://cgspace.cgiar.org/handle/10568/33839
East Africa	Nyongesa, D and Esilaba, A O and Emongor, R and Bikketi, E and Were, K (2017) Assessment of gender and innovations in climatesmart agriculture for food and nutrition security in Kenya: a case of Kalii watershed. International Journal of Agricultural Resources, Governance and Ecology, 13 (2). pp. 109-137. ISSN 1741-5004	http://oar.icrisat.org/10157/
East Africa	Shikuku, Kelvin M.; Mwongera, Caroline; Winowiecki, Leigh; Twyman, Jennifer; Läderach, Peter. 2016. Understanding farmers' indicators in climate-smart agriculture prioritization in the Southern Agricultural Growth Corridor of Tanzania (SAGCOT). Centro Internacional de Agricultura Tropical (CIAT), Cali, CO. 56 p. (Publicación CIAT No. 415)	https://cgspace.cgiar.org/handle/10568/72826
East Africa	Bamanyaki PA. 2020. Barriers and opportunities for gender-responsive climate-smart agriculture adoption in Northern Uganda. CCAFS Info Note. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/109811
East Africa	Ojango JMK, Audho J, Oyieng E, Recha J, Muigai AWT. 2018. Innovative use of sheep and goats by women in climate smart villages in Kenya. Proceedings of the World Congress on Genetics Applied to Livestock Production, Volume Genetic gain - Strategies for Local Breeds 1: 985.	https://cgspace.cgiar.org/handle/10568/97552
East Africa	Bernier Q, Meinzen-Dick R, Kristjanson P, Haglund E, Kovarik C, Bryan E, Ringler C, Silvestri S. 2015. Gender and Institutional Aspects of Climate-Smart Agricultural Practices: Evidence from Kenya. CCAFS Working Paper No. 79. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/65680

East Africa	Ambaw G, Tadesse M, Recha J. 2019. Activity Report: Implementation of the CSA Monitoring framework in Doyogena Climate-Smart Landscape, Ethiopia. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/106308
East Africa	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. 2020. Reshaping the Future: Gender- responsive Climate Smart Agriculture Options for Northern Uganda.	https://cgspace.cgiar.org/handle/10568/111281
East Africa	Huyer S, Nyasimi M. 2017. Gender and Social Inclusion. Climate-Smart Agriculture Manual for Agriculture Education in Zimbabwe. Copenhagen: Climate Technology Centre and Network.	https://cgspace.cgiar.org/handle/10568/89632
East Africa	Makate, C., Makate, M., Mutenje, M., Mango, N. and Siziba, S., 2019. Synergistic impacts of agricultural credit and extension on adoption of climate-smart agricultural technologies in southern Africa. *Environmental Development*, *32*, p.100458.	https://www.sciencedirect.com/science/article/abs/pii/S2211464519301411#:~:text=Credit%20and%20extension%20access%20enhance,%2Dsmart%20agriculture%20(CSA).&text=Simultaneous%20access%20to%20credit%20and,CSA%20adoption%20than%20in%20isolation.&text=Education%2C%20transport%2C%20land%20size%20and,access%20to%20extension%20and%20credit.
East Africa	Gotor E, Fadda C, Trincia C. 2014. Mathing Seeds to Needs - female farmers adapt to a changing climate in Ethiopia. Impact Assessment Briefs no 14. Rome, Italy: Bioversity International.	https://cgspace.cgiar.org/handle/10568/36173
East Africa	Recha J, Radeny M, Kinyangi J, Kimeli P, Atakos V, Lyamchai C, Ngatoluwa R, Sayula G. 2015. Climate-smart villages and progress in achieving household food security in Lushoto, Tanzania. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/70257
East Africa	Bedmar Villanueva A, Jha Y, Ogwal-Omara R, Welch E, Sayoum Wedajoo A, Halewood M. 2016. Influence of social networks on the adoption of climate smart technologies in East Africa: Findings from two surveys and participatory exercises with farmers and local experts. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/71146
East Africa	Harahagazwe D, Quiroz R, Kuoko S, Recha J, Radeny M, Sayula G, Schulte-Geldermann E, Brush G, Msoka E, Rimoy M, Asfaw A, Bonierbale M, Atakos V, Kinyangi J, Exaud A. 2016. Participatory Evaluation of Resilient Potato Varieties in Climate-Smart Villages of Lushoto in Tanzania. CCAFS Working Paper no 192. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/79454
East Africa	Amsler K, Hein C, Klasek G. 2017. Youth Decision Making in Agricultural Adaptation to Climate Change. CCAFS Working Paper no. 206. Wageningen, the	https://cgspace.cgiar.org/handle/10568/88082

	Netherlands CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	
East Africa	Recha J, Kimeli P, Atakos V, Radeny M, Mungai C. 2017. Stories of Success:Climate-Smart Villages in East Africa. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/81030
East Africa	Mungai C, Opondo M, Outa G, Nelson V, Nyasimi M, Kimeli P. 2017. Uptake of Climate-Smart Agriculture Through a Gendered Intersectionality Lens: Experiences from Western Kenya. In: Filho WL et al (eds.). 2017. Climate Change Adaptation in Africa: Fostering Resilience and Capacity to Adapt. Part II. Cham, Switzerland: Springer International Publishing. pp 587-601.	https://cgspace.cgiar.org/handle/10568/80807
East Africa	Radeny M, Ogada MJ, Recha J, Kimeli P, Rao EJO, Solomon D. 2018. Uptake and Impact of Climate-Smart Agriculture Technologies and Innovations in East Africa. CCAFS Working Paper no. 251. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/99267
East Africa	Birir A. 2020. Effect of social capital on adoption of climate-smart agriculture in Nyando Basin, Kenya. CCAFS Info Note. Wageningen, The Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/110327
West Africa	Nchanji, Eileen Bogweh. (2018). Gender Gaps in Food Crop Production and Adaptation to Climate-Smart Technologies: The case of Western Highlands of Cameroon. International Center for Tropical Agriculture (CIAT), Pan-Africa Bean Research Alliance - PABRA. 52 p.	https://cgspace.cgiar.org/handle/10568/97766
West Africa	Avornyo FK, Zougmoré RB, Partey ST. 2020. Managing local fodder species for a competitive gender-sensitive goat value chain: achievements and lessons learnt from Climate-Smart Villages in northern Ghana. CCAFS Info Note. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/109056
West Africa	Ouedraogo M, Partey ST, Zougmore R, Derigubah M, Sanogo D, Boureima M. 2018. Mainstreaming gender and social differentiation into CCAFS research activities in West Africa: lessons learned and perspectives. CCAFS Info Note. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/98394
West Africa	Bonilla-Findji O, Ouedraogo M, Partey ST, Dayamba SD, Bayala J, Zougmoré R. 2017. West Africa Climate-Smart Villages AR4D sites: 2016 Inventory. Wageningen, The Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/83283

West Africa	Nenkam AM, Ouédraogo M, Traoré B, Moctar DM, Traore S, Kassogue I, Zemadim B , Zougmoré RB. 2019. Scaling up climate services for agriculture in Mali Initial findings from piloted implementation of PICSA approach in Africa RISING project intervention zone, southern Mali. CCAFS Info Note. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/105558
West Africa	Sanogo D, Sall M, Camara Ba, Diop M Badji M, Ba HS. 2020. The Climate-Smart Village approach: putting communities at the heart of restoration. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111416
West Africa	CCAFS. 2021. Gender profile of climate-smart agriculture in Ghana. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), West Africa Program, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).	https://cgspace.cgiar.org/handle/10568/111543
West Africa	Diouf NS, Ouédraogo M, Ouédraogo I, Ablouka G, Zougmoré RB. 2020. Using Seasonal Forecast as an Adaptation Strategy: Gender Differential Impact on Yield and Income in Senegal. Atmosphere 11(10):1127.	https://cgspace.cgiar.org/handle/10568/110000
West Africa	Ouédraogo M, Jaquet S, Traoré B, Sall M, Tougiani A, Dembele S, Zougmoré RB. 2021. Prioritizing value chains for climate-smart agriculture (CSA) promotion in Mali, Niger and Senegal. CCAFS Info Note. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111456
West Africa	Bayala J, Chabi A. 2021. Partnership for scaling up gender and nutrition-sensitive CSA II (P4S II) - 2020 Regional Annual Report. CCAFS Report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111408
West Africa	Peterson CA. 2014. Local-level appraisal of benefits and barriers affecting adoption of climate-smart agricultural practices: Ghana. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)	https://cgspace.cgiar.org/handle/10568/35688
West Africa	Sonogo D, Dayamba D, Ouedraogo M, Zougmore R, Bayala J, Ndiaye O, Sall M, Diop M, Camara B, Ndour Y, Sangare S, Ky-Dembele C, Partey S, Ouedraogo J, Jarvis A, Campbell B. 2016. The Climate-Smart Village approach: what research and insights from current implementation in Daga-Birame CSV in Senegal?. Bamako, Mali: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) - International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).	https://cgspace.cgiar.org/handle/10568/78211
West Africa	Bayala J, Zougmoré R, Ky-Dembele C, Bationo BA, Buah S, Sanogo D, Somda J, Tougiani A, Traoré K, Kalinganire A. 2016. Towards developing scalable climate-smart village models: approach and lessons learnt from pilot research in West Africa. ICRAF Occasional Paper No. 25. Nairobi: World Agroforestry Centre.	https://cgspace.cgiar.org/handle/10568/76336

West Africa	Sanogo D, Ndour YB, Sall M, Toure K, Diop M, Camara AB, N'Diaye O, Thiam D. 2017. Participatory diagnosis and development of climate change adaptive capacity in the groundnut basin of Senegal: building a climate-smart village model. Agriculture & Food Security 6-13.	https://cgspace.cgiar.org/handle/10568/81011
West Africa	Diarra, F.B., Ouédraogo, M., Zougmoré, R.B., Partey, S.T., Houessionon, P. and Mensah, A., 2021. Are perception and adaptation to climate variability and change of cowpea growers in Mali gender differentiated?. Environment, Development and Sustainability, pp.1-17.	https://link.springer.com/article/10.1007/s10668-021-01242-1
Latin America	Acosta M, Bonilla-Findji O, Eitzinger A, Arora D, Martinez-Baron D, Bejarano G, Suchini JG. 2019. Examining gender differences in the access to and implementation of climate-smart agricultural practices in Central America. CCAFS Info Note. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/103471
Latin America	Gutierrez-Montes I, Arguedas M, Ramirez-Aguero F, Mercado L, Sellare J. 2020. Contributing to the construction of a framework for improved gender integration into climate-smart agriculture projects monitoring and evaluation: MAP-Norway experience. Climatic Change 158:93-106.	https://cgspace.cgiar.org/handle/10568/110121
Latin America	Devereux T. 2014. Gender Dynamics in the Adoption of Climate Adaptation Practices: A Case Study in the Cauca Department of Colombia. Field Practicum Report for Master of Sustainable Development Practice Degree, University of Florida: Gainesville.	https://cgspace.cgiar.org/handle/10568/68215
Latin America	Bonilla-Findji O, Martinez-Baron D, Martinez JD, Castellanos A, Eitzinger A, Andrieu N, Le Coq JF, Howland F, Muriel J, Acosta M. 2020. FINAL TECHNICAL PROJECT REPORT: Generating evidence on gender sensitive Climate-Smart Agriculture to inform policy in Central America. CCAFS report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111137
Latin America	Bonilla-Findji O, Eitzinger A, Bejarano G, Ortega A, Moreno MF, Muriel J. 2020. Synthesis and key insights from the implementation of the gender sensitive Climate-Smart Agriculture monitoring framework in Central America: temporal and spatial dynamics in the Olopa (Guatemala) and Santa Rita (Honduras) Climate Smart Villages. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111546
Latin America	Gonda N. 2016. Climate change, “technology” and gender: “adapting women” to climate change with cooking stoves and water reservoirs. Gender, Technology and Development 20(2):149–168.	https://cgspace.cgiar.org/handle/10568/78454
Latin America	Peterson CA. 2014. Local-level appraisal of benefits and barriers affecting adoption of climate-smart agricultural practices: Curití, Colombia. Copenhagen, Denmark: CGIAR Reseach Program on Climate Change, Agriculture and Food Security (CCAFS)	https://cgspace.cgiar.org/bitstream/handle/10568/35694/Colombia_Report.pdf?sequence=1&isAllowed=y

Latin America	Twyman, Jennifer; Useche, Pilar; Deere, Carmen Diana. 2015. Gendered perceptions of land ownership and agricultural decision-making in Ecuador : Who are the farm managers? . Land Economics 91(3): 479-500.	https://cgspace.cgiar.org/handle/10568/67952
Latin America	Muller C, Salgado R, Duran M, Le Coq JF, de Varax M, Gamba-Triminio C, Howland F, Chia E, Andrieu N, Gallardo O. 2018. Innovation Platform for Climate-Smart Agriculture in Honduras. CCAFS Policy Brief. Wageningen,the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/91678
Latin America	Osorio-García AM, Paz L, Howland F, Ortega LA, Acosta-Alba I, Arenas L, Chirinda N, Martinez-Baron D, Bonilla-Findji O, Loboguerrero AM, Chia E, Andrieu N. 2020. Can an innovation platform support a local process of climate-smart agriculture implementation? A case study in Cauca, Colombia. Agroecology and Sustainable Food Systems 4(3):378-411.	https://cgspace.cgiar.org/handle/10568/101648
Latin America	Andrieu N, Howland F, Acosta-Alba I, Le Coq J-F, Osorio-Garcia AM, Martinez-Baron D, Gamba-Trimiño C, Loboguerrero AM, Chia E. 2019. Co-designing Climate-Smart Farming Systems With Local Stakeholders: A Methodological Framework for Achieving Large-Scale Change. Frontiers in Sustainable Food Systems 3:37.	https://cgspace.cgiar.org/handle/10568/101397
Latin America	Howland F, Arora D, Bonilla-Findji O, Andrieu N. 2019. Understanding socio-economic aspects of adoption and effects of Climate Smart Agricultural (CSA) practices in Guatemala. Cali, Colombia: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/105930
Latin America	Bonilla-Findji O, Eitzinger A, Andrieu N, Bejarano G, Aguilar A, Ortega LA, Paz L, Suchini JG. 2019. LAM 2018 Monitoring Summary -CSA Adoption and perceived effects.	https://cgspace.cgiar.org/handle/10568/100235
Latin America	Bonilla-Findji O, Alvarez-Toro P, Martinez-Baron D, Lopez C, Álvarez O, Castellanos A, Martínez JD. 2020. Latin America Climate-Smart Villages AR4D sites: 2020 Inventory. Wageningen, The Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111398
Latin America	Bonilla-Findji O, Martinez-Baron D, Martinez JD, Castellanos A, Eitzinger A, Andrieu N, Le Coq JF, Howland F, Muriel J, Acosta M. 2020. FINAL TECHNICAL PROJECT REPORT: Generating evidence on gender sensitive Climate-Smart Agriculture to inform policy in Central America. CCAFS report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111137
Latin America	Almenteros H, Sarruf Romero L, Bonilla-Findji O, Martínez-Barón D. 2019. Monitoreo de prácticas y tecnologías implementadas en el TeSAC Cauca, Colombia (2017) – Infografía. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/bitstream/handle/10568/107306/INFOCAUCA.pdf?sequence=1&isAllowed=y

Latin America	Almenteros H, Sarruf Romero L, Bonilla-Findji O, Martínez-Barón D. 2019. Monitoreo de prácticas y tecnologías implementadas en el TeSAC Santa Rita, Honduras (2017) – Infografía. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/bitstream/handle/10568/107308/INFOSTARITA.pdf?sequence=1&isAllowed=y
Latin America	Almenteros H, Sarruf Romero L, Bonilla-Findji O, Martínez-Barón D. 2019. Monitoreo de prácticas y tecnologías implementadas en el TeSAC Olopa Gutemala (2017) – Infografía. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/bitstream/handle/10568/107307/INFOOLOPA.pdf?sequence=1&isAllowed=y
Latin America	Reporte Técnico Fundación Ecohabitats 2018. 2018. Fundación Ecohabitats.	https://cgspace.cgiar.org/bitstream/handle/10568/100228/FORMATO%20REPORTE%20TECNICO.pdf?sequence=1&isAllowed=y
Latin America	Amílcar Aguilar Carrillo-José Gabriel Suchini. 2019. Construcción y desarrollo de los TeSAC en Centroamérica en los territorios de “El Tuma - La Dalia” en NicaCentral, Nicaragua, y “Olopa” y “Santa Rita” en la región del Trifinio de Guatemala y Honduras	https://cgspace.cgiar.org/bitstream/handle/10568/100241/Informe%20Narrativo%20Final%20Convenio%20Especifico%20CCAFS-CATIE%202018%20A.A%20y%20JGS.pdf?sequence=1&isAllowed=y
Latin America	Fernández Ortega, L., Paz, P., Giraldo, D., Cadena, M. 2017. Implementación de Servicios Integrados Participativos de Clima para la Agricultura (PICSA) en el TESAC Cauca - Colombia. CCAFS Working Paper no. 234. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Disponible en línea: www.ccafs.cgiar.org	https://cgspace.cgiar.org/bitstream/handle/10568/93424/SISTEMATIZACION_PICSA_TeSAC.pdf?sequence=8&isAllowed=y
Latin America	Leida Mercado-Alejandra Ospina- José Gabriel Suchini. 2019. Reporte Anual Monitoreo 2018: Territorio Sostenible Adaptado al Clima de Olopa, Guatemala.	https://cgspace.cgiar.org/bitstream/handle/10568/107350/Reporte%20Monitoreo%20Olopa_2018.pdf?sequence=1&isAllowed=y
Latin America	Acosta, Mariola; Bonilla-Findji, Osana; Howland, Fanny Cecile; Martínez Baron, Deissy; Twyman, Jennifer (2018). Informe del taller de fortalecimiento de capacidades de actores nacionales para la formulación e implementación de proyectos y programas en agricultura sostenible adaptada al clima con enfoque de género. Informe del proyecto IDRC-CCAFS. CGIAR Programa de Investigación de Cambio Climático, Agricultura y Seguridad Alimentaria (CCAFS). Wageningen, Países Bajos: CGIAR Programa de Investigación de Cambio Climático, Agricultura y Seguridad Alimentaria (CCAFS). Disponible online en: www.ccafs.cgiar.org	https://cgspace.cgiar.org/bitstream/handle/10568/98864/IDRC-CCAFS%20Activity%20report%20_Taller%20Nacional%20de%20Genero_Gautemala%202018.pdf?sequence=5&isAllowed=y
South Asia	Chanana N, Khatri-Chhetri A, Pimpale A, Joshi R, Saini S, Shirsath PB, Joshi AK, Aggarwal PK. 2020. Project completion report: Scaling up resilient agricultural practices, technologies and services in the vulnerable areas of India. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/110099

South Asia	Bhusal A, Khatri L, GC S, Mandal I, Bhatt BP, Pudasaini N, Katuwal Y, Mishra S, Gautam A, Shiwakoti T, Dhakal B. 2020. Compendium of Climate-Smart Agriculture Technologies and Practices. Local Initiatives for Biodiversity, Research and Development (LI-BIRD) and Ministry of Land Management, Agriculture and Co-operative (MoLMAC), Gandaki Province, Pokhara, Nepal	https://ccafs.cgiar.org/index.php/resources/publications/compendium-climate-smart-agriculture-technologies-and-practices
South Asia	ICAR, IWMI, CCAFS. 2020. Scaling Out Climate-Smart Agriculture for Resilient Farming in Adilabad District of Telangana. Project Report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/111203
South Asia	Hariharan VK, Mittal S, Rai M, Agarwal T, Kalvaniya KC, Stirling CM, Jat ML. 2018. Does climate-smart village approach influence gender equality in farming households? A case of two contrasting ecologies in India. Climatic Change 158:77-90.	https://cgspace.cgiar.org/handle/10568/100291
South Asia	Khatri-Chhetri A, Regmi PP, Chanana N, Aggarwal PK. 2020. Potential of climate-smart agriculture in reducing women farmers' drudgery in high climatic risk areas. Climatic Change 158:29-42.	https://cgspace.cgiar.org/handle/10568/106024
South Asia	Meena, M S & Singh, K. & Meena, H M. (2015). Gendered Approach to Climate Resilient Agriculture: Technology and Policy-led Options. 10.13140/RG.2.1.2401.7120.	https://krishi.icar.gov.in/jspui/handle/123456789/36497
South Asia	Chanana-Nag N, Aggarwal PK. 2018. Woman in agriculture, and climate risks: hotspots for development. Climatic Change 1-15.	https://cgspace.cgiar.org/handle/10568/96539
South Asia	Parker, Louis; Guerten, Nora;Nguyen, Than Thi ;Rinzin, Chimi ;Tashi, Dawa ;Wangchuk, Dorji ;Bajgai, Yadunath ;Subedi, Kiran ;Phuntsho, Loday ;Thinley, Namgay ;Chhogyel, Ngawang ;Gyalmo, Tasho ;Katwal, Tirtha B. ;Zangpo, Tshelthrim ;Acharya, Sagar ;Pradhan, Sangita ;Penjor, Sonam. 2017. Climate change impacts in Bhutan: challenges and opportunities for the agricultural sector. CCAFS Working Paper no. 191. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/80918
South Asia	CCAFS. 2017. Empowering Women for Climate Smart Crop-Dairy Farming Systems: Post Harvest Management, Value Chains and Market. CCAFS workshop report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/96145
South Asia	CCAFS South Asia. 2017. Progressing towards climate resilient ggriculture: top ten success stories from CCAFS in South Asia. New Delhi, India: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/83477
South Asia	Chanana N, Khatri-Chhetri A, Pimpale A, Joshi R, Saini S, Shirsath PB, Joshi AK, Aggarwal PK. 2020. Project completion report: Scaling up resilient agricultural practices, technologies and services in the vulnerable areas of India. Wageningen, the Netherlands: CGIAR	https://cgspace.cgiar.org/bitstream/handle/10568/110099/Final%20project%20report.pdf

	Research Program on Climate Change, Agriculture and Food Security (CCAFS).	
South Asia	CCAFS, BAIF. 2020. Gender Integration for Inclusive Adaptation to Climate Risks. The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/109694
South Asia	ICRISAT. 2016. Building Climate-Smart Villages: Five approaches for helping farmers adapt to climate change. Technical Report. Patancheru, India: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).	https://cgspace.cgiar.org/handle/10568/89884
South Asia	Aryal, J.P., Farnworth, C.R., Khurana, R., Ray, S., Sapkota, T.B. and Rahut, D.B., 2020. Does women's participation in agricultural technology adoption decisions affect the adoption of climate-smart agriculture? Insights from Indo-Gangetic Plains of India. Review of Development Economics, 24(3), pp.973-990.	https://onlinelibrary.wiley.com/doi/pdf/10.1111/rode.12670?casa_token=aa2i16b6FDUAAAAA:56QvJjPueCKU04cXixWGX6Wc11n6gE27rNpD11i2ebV8gS3rFiTrwpUHYDTQ9UNYH06gtnlvbO8_m9GIWw
South Asia	CCAFS South Asia. 2018. CCAFS Climate-Smart Agriculture Learning Platform, South Asia. CSALP South Asia quarterly Newsletter No.19. New Delhi, India: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/98827
South Asia	Chanana N, Khatri-Chhetri A, Pande K, Joshi R. 2018. Integrating Gender into the Climate Smart Village Approach of Scaling Out Adaptation Options in Agriculture. CCAFS Info Note. New Delhi, India: CGIAR Research Program on Climate Change, Agriculture and Food Security	https://cgspace.cgiar.org/handle/10568/96274
South Asia	Sharma S, Rana DS, Jat ML, Biswal S, Arun KC, Pathak H. 2020. A compendium of technologies, practices, services and policies for scaling climate smart agriculture in Odisha (India). International Rice Research Institute.	https://cgspace.cgiar.org/handle/10568/106888
South Asia	Bonilla-Findji O, Eitzinger A, Andrieu N, Bejarano G, Hossain E, Agarwal T, Bhusal A, Khatri- Cheetri A, Nagpal M, Pudasaini R. 2019. South Asia 2018 Monitoring Summary -CSA Adoption and perceived effects.	https://cgspace.cgiar.org/handle/10568/100318
South Asia	Khatri-Chhetri A., Aggarwal P.K., Joshi P.K.,Vyas S..2016.Farmers' prioritization of climate-smart agriculture (CSA) technologies.Agricultural Systems 151:184–191	https://cgspace.cgiar.org/handle/10568/78594
South Asia	Jost C, Kyazze F, Naab J, Neelormi S, Kinyangi J, Zougmore R, Aggarwal P, Bhatta G, Chaudhury M, Tapio-Bistrom ML, Nelson S, Kristjanson P. 2015. Understanding gender dimensions of agriculture and climate change in smallholder farming communities, Climate and Development	https://cgspace.cgiar.org/handle/10568/67363
South Asia	Paudel B, Khanal RC, Khatri-Chhetri A, Bhatta K, Chaudhari P. 2017. Climate-Smart Agriculture in Nepal: Champion technologies and their pathways for scaling	https://cgspace.cgiar.org/handle/10568/82600

	up. London, United Kingdom: Climate and Development Knowledge Network	
South Asia	Jost CC, Kristjanson P, Ferdous N. 2014. Participatory approaches for gender-sensitive research design. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS)	https://cgspace.cgiar.org/handle/10568/35729
South Asia	Agriculture and Food Security CGIAR Research Program on Climate Change, 'Supporting women to take the lead in climate change adaptation', 2015	https://gender.cgiar.org/publications-data/supporting-women-take-lead-climate-change-adaptation
South Asia	Aryal JP, Jat ML, Sapkota TB, Khatri-Chhetri A, Kassie M, Rahut DB, Maharjan S. 2018. Adoption of multiple climate-smart agricultural practices in the Gangetic plains of Bihar, India. International Journal of Climate Change Strategies and Management 10(3):407-427	https://cgspace.cgiar.org/handle/10568/100184
South Asia	Ali MY, Hossain ME. 2019. Profiling Climate Smart Agriculture for Southern Coastal Region of Bangladesh and its Impact on Productivity, Adaptation and Mitigation. EC Agriculture 5(9):530-544.	https://cgspace.cgiar.org/handle/10568/105553
South Asia	LI-BIRD. 2019. Scaling-Up Climate Smart Agricultural Technologies and Approaches Using Travelling Seminar as a Method and Tool in Nepal. Local Initiatives for Bio-diversity, Research and Development (LI-BIRD).	https://cgspace.cgiar.org/handle/10568/106889
South Asia	CCAFS, BAIF. 2020. Custom Hiring Centers: Facilitating Inclusive Access to Weather-Resilient Technology. The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/109725
South Asia	Bhusal A, Khatri L, Neupane S, Yadav N, Khatri-Chettri A, Malla Y. 2019. Communicating Climate Smart Agriculture to the Stakeholders: Impact of LI-BIRD/CCAFS Travelling Seminars in Climate Smart Villages of Nepal: Assessment Report. LI-BIRD and CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/106729
South Asia	Raut N, Raya B, Sitaula B K, Bajracharya R M, Kristjanson P. 2013. Gender roles and greenhouse gas emissions in intensified agricultural systems in the mid-hills of Nepal. Working Paper No. 47. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/29012
South Asia	Khan, Md. Tajuddin; Kishore, Avinash; Joshi, Pramod Kumar. 2016. Gender dimensions on farmers' preferences for direct-seeded rice with drum seeder in India. IFPRI Discussion Paper 1550. Washington, D.C.: International Food Policy Research Institute (IFPRI).	https://www.ifpri.org/publication/gender-dimensions-farmers%E2%80%99-preferences-direct-seeded-rice-drum-seeder-india
South Asia	Joshi PK, Khan MT, Avinash K. 2019. Heterogeneity in male and female farmers' preference for a profit-enhancing and labor-saving technology: The case of Direct-Seeded Rice (DSR) in India. Canadian Journal of Agricultural Economics 67(3):303-320.	https://cgspace.cgiar.org/handle/10568/103635

Southeast Asia	Tran NLD, Rañola RF Jr, Sander BO, Reiner W, Nguyen DT, Nong NKN. 2020. Determinants of adoption of climate-smart agriculture technologies in rice production in Vietnam. International Journal of Climate Change Strategies and Management 12(2):238-256.	https://cgspace.cgiar.org/handle/10568/107158
Southeast Asia	Ngo DP, Tran NLD, Le MD, Wassmann R, Sander BO. 2019. Participatory prioritization of climate-smart agriculture techniques: Case study of processes and outcomes from the Tra Hat Climate-Smart Village in Vietnam. CCAFS Working Paper No. 281.Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/103815
Southeast Asia	IIRR. 2020. Climate Smart Agriculture Options for Myanmar Small-Holder Farmers: Education and Training Posters for Villages. International Institute of Rural Reconstruction (IIRR).	https://cgspace.cgiar.org/handle/10568/109054
Southeast Asia	IIRR. 2019. Climate Smart Agriculture: Models for Empowering Women Livestock Producers. Cavite, Philippines: International Institute of Rural Reconstruction (IIRR).	https://cgspace.cgiar.org/handle/10568/102278
Southeast Asia	Manalo JA IV, Berto KC, Balmeo KP, Saludez FM, Villaflor JD, Pagdanganan AM. 2015. Infomediaries as complementary knowledge channels of climate-smart agriculture in the Philippines. CCAFS Scoping Study Report. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/72436
Southeast Asia	Corner-Dolloff C, Nowak AC, Lizarazo M, Parker L, Van Trinh M, Nghia TD. 2016. Case Story 8: Multi-stakeholder Prioritization Approach for Climate-Smart Agriculture Planning and Investment in Vietnam. In: Learning and Coping with Change: Case Stories of Climate Change Adaptation in Southeast Asia. Editors: Percy E. Sajise, Maria Celeste H. Cadiz, and Rosario B. Bantayan. Southeast Asian Regional Center for Graduate Study and Research in Agriculture 139-165.	https://cgspace.cgiar.org/handle/10568/79473
Southeast Asia	Farnworth CR, Hà Trần T, Sander BO, Wollenberg E, de Haan N, McGuire S. 2017. Incorporating gender into low-emission development: a case study from Vietnam. Gender, Technology and Development 21(1-2):5-30.	https://cgspace.cgiar.org/handle/10568/89447
Southeast Asia	Le TT, Vidallo R, Simelton E, Gonsalves J. 2018. 9 steps to scale climate-smart agriculture: Lessons and experiences from the climate-smart villages in My Loi, Vietnam and Guinayangan, Philippines. Hanoi, Vietnam: CGIAR Research Program on Climate Change, Agriculture and Food Security Southeast Asia (CCAFS).	https://cgspace.cgiar.org/handle/10568/101921
Southeast Asia	Rosimo M, Gonsalves J, Gammelgaard J, Vidallo R, Oro E. 2018. Addressing gender-based impacts of climate change: A case study of Guinayangan, Philippines. CCAFS Info note. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/98473

Southeast Asia	SEARCA. 2019. Establishing Climate-Smart Villages in the ASEAN Region to Improve Food Security and Resiliency in Local Communities (Narrative Report). Laguna, Philippines: Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA).	https://cgspace.cgiar.org/handle/10568/106893
Southeast Asia	Htwe NM, The NEM, Naing NNZ, Hein Y. 2019. Documenting the application of the Myanmar Climate-Smart Agriculture Strategy. CCAFS Working Paper No. 292. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/106513
Southeast Asia	Labios RV, Sebastian LS, Labios JD, Santos CMB. 2019. Compendium of Climate-Resilient Agriculture Technologies and Approaches in the Philippines. Southeast Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), College, Los Baños, Laguna, Philippines; and Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/106136
Southeast Asia	IIRR, CEDAC. 2020. Small livestock: climate-smart, environmentally sound, economically empowering, gender-fair and transformative agricultural enterprises in Cambodia. A brief for decision makers. Cavite, Philippines: International Institute of Rural Reconstruction (IIRR).	https://cgspace.cgiar.org/handle/10568/111538
Southeast Asia	Manalo IV JA, Saludez FM, Layaoen MG, Pagdanganan AM, Berto JC, Frediles CA, Balmeo KP, Villaflor JD. 2016. Climate-Smart Agriculture: Do Young People Care? Asian Journal of Agriculture and Development (AJAD) 13(1).	https://cgspace.cgiar.org/handle/10568/89886
Southeast Asia	Trung ND, Villanueva J, Khounthavong M, Eam D. 2019. Evaluation of Climate-Smart Village roving workshop as a farmer-to-farmer learning platform. CCAFS Working Paper No. 257. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/100123
Southeast Asia	Eam D, Emdin F, Kura Y. 2018. Towards Effective Participatory Decision-Making on Climate-Smart Agriculture (CSA) Technologies: A Case Study of Rohal Suong Climate-Smart Village, Battambang Province, Cambodia. CCAFS Working Paper No. 241. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/99183
Southeast Asia	Vernooy R, Le Kai Hoan, Nguyen Tuan Cuong, Bui Le Vinh. 2018. Farmers' own assessment of climate smart agriculture: Insights from Ma village in Vietnam. CCAFS Working Paper no. 222. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://cgspace.cgiar.org/handle/10568/90628

Southeast Asia	Paris T, Rola-Rubzen MF (Eds.). 2018. Gender dimension of climate change research in agriculture (Case studies in Southeast Asia). Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Available online at: www.ccafs.cgiar.org	https://hdl.handle.net/10568/100189
Southeast Asia	Bernardo E, Cleary J, Joven B. 2017. Photovoice in Climate-Smart Villages in Vietnam. Wageningen, Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://hdl.handle.net/10568/83035
Southeast Asia	Ferrer AJG, Bernardo EBV. 2020. Outcomes of CCAFS Work in Vietnam. Hanoi, Vietnam: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).	https://hdl.handle.net/10568/106951
Southeast Asia	Eam, D. 2019. Women and Youth as Catalysts of Climate-Smart Agriculture in Cambodia. CGIAR CCAFS.	https://ccafs.cgiar.org/news/women-and-youth-catalysts-climate-smart-agriculture-cambodia
Southeast Asia	Celeridad, RL. 2019. A Climate-Smart Investment for Female Farmers. CGIAR CCAFS.	https://ccafs.cgiar.org/index.php/news/climate-smart-investment-female-farmers
Southeast Asia	Celeridad, RL. 2018. WORTH A THOUSAND WORDS: USING PHOTOVOICE TO DOCUMENT THE CLIMATE CHANGE EXPERIENCES OF FARMERS IN VIETNAM. CGIAR CCAFS.	https://ccafs.cgiar.org/news/worth-thousand-words-using-photovoice-document-climate-change-experiences-farmers-vietnam
Southeast Asia	Smith, A. 2017. THE ART OF ADAPTATION: ENGAGING YOUTH WITH CLIMATE-SMART SOLUTIONS. CGIAR CCAFS.	https://ccafs.cgiar.org/news/art-adaptation-engaging-youth-climate-smart-solutions
Southeast Asia	Eam, D. 2017. WORKING WITH WOMEN FARMERS TO MAKE CAMBODIAN COMMUNITIES “PLANTWISE.” CGIAR CCAFS.	https://ccafs.cgiar.org/news/working-women-farmers-make-cambodian-communities-plantwise

Appendix D: CSA Impact on Gender Outcomes : Data reflect female farmers'perceptions as gathered through the CSA Monitoring plan[1].

Country	CSV site	Year	CSA practices (Workingpaper)	Theme	Gender outcomes perceived by female			
					Unaffected/ Reduced labor		Increased decision making/control on CSA Resources	
					%	N	%	N
East Africa								
Uganda	Hoima	2018	Trenches	Water management + Soil management	52%	29	96%	23
		2018	Tree planting	Agroforestry	66%	50	100%	7
		2018	Intercropping (maize beans)	Crop management and genetic improvement	68%	77	98%	55
		2018	Intercropping (maize cassava)	Crop management and genetic improvement	75%	36	100%	25
		2018	Improved varieties (cassava)	Genetic improvement + Biofortification	86%	107	100%	60
		2018	Improved varieties (sweetpotato or beans)	Genetic improvement + Biofortification	84%	123	98%	63
		2021	Improved varieties (cassava)	Genetic improvement + Biofortification	80%	10	89%	9
		2021	Improved varieties (sweetpotato or beans)	Genetic improvement + Biofortification	83%	12	83%	12
		2021	Intercropping (maize beans)	Crop management and genetic improvement	95%	43	84%	37
		2021	Intercropping (maize cassava)	Crop management and genetic improvement	75%	4	100%	7
		2021	Tree planting	Agroforestry	79%	19	100%	4
		2021	Trenches	Water management + Soil management	50%	6	67%	6
Ethiopia	Doyogena	2019	Agroforestry fallow	Agroforestry	58%	76	95%	63
		2019	Controlled grazing	Animals	74%	92	89%	81
		2019	Crop Residue Incorporation (wheat or barely)	Soil management	93%	28	94%	31
		2019	Cut & Carry	Animals	49%	87	84%	77
		2019	Green manure	Soil management	69%	26	92%	26
		2019	Improved varieties (wheat)	Genetic improvement	79%	56	93%	54
		2019	Improved breeds (sheep)	Animals	75%	8	100%	5
		2019	Improved varieties (beans)	Genetic improvement	25%	4	100%	5
		2019	Improved varieties (potato)	Genetic improvement	90%	52	100%	54
		2019	Rotation (Cereal/potato-legume)	Crop management	76%	42	95%	43
		2019	Terrace with biological measure (Desho grass)	Water management + Soil management	49%	72	83%	65
		2020	Agroforestry fallow	Agroforestry	100%	23	97%	29
		2020	Controlled grazing	Animals	98%	121	86%	114
		2020	Crop Residue Incorporation (wheat or barely)	Soil management	96%	56	88%	68
		2020	Cut & Carry	Animals	93%	129	86%	126
		2020	Green manure	Soil management	69%	13	100%	16
		2020	Improved varieties (wheat)	Genetic improvement	92%	120	75%	137
		2020	Improved breeds (sheep)	Animals	100%	11	95%	20
		2020	Improved varieties (beans)	Genetic improvement	78%	9	92%	12
		2020	Improved varieties (potato)	Genetic improvement	87%	61	91%	82
		2020	Rotation (Cereal/potato-legume)	Crop management	97%	32	97%	37
		2020	Terrace with biological measure (Desho grass)	Water management + Soil management	78%	134	91%	172
	Basona Werana	2021	Check-dam	Water management + Soil management	100%	13	64%	11
		2021	Gully rehabilitation	Water management + Soil management	79%	34	100%	32
		2021	Percolation pits	Water management	67%	6	80%	5
		2021	Terrace with biological measure	Water management + Soil management	92%	59	85%	61
		2021	Terraces	Water management + Soil management	90%	129	87%	124
		2021	Trenches	Water management + Soil management	74%	27	92%	26
		2021	Enclosures	Integrated nutrient + Water management	83%	41	88%	34

[1] Online access to the CSA monitoring - Standard Indicators results: Hoima (2018, 2021), Doyogena (2019, 2020), Basona Werana (2021), Lawra-Jirapa (2017); Kaffrine (2019, 2021), Fakkara (2021), Cinzana (2021), Barisal (2018), Khulna (2018), Bardiya (2018), Mahottari (2018), Nawalparasi (2018), Tuma-La Dalia (2018), Cauca (2018, 2019), Olopa (2018, 2020, 2021), Santa Rita (2018, 2020, 2021)

Country	CSV site	Year	CSA practices (Workingpaper)	Theme	Gender outcomes perceived by female			
					Unaffected/ Reduced labor		Increased decision making/control on CSA Resources	
					%	N	%	N
West Africa								
Ghana	Lawra-Jirapa	2017	Rotation	Crop management	56%	137	85%	108
		2017	Earth bund	Water management	36%	14	100%	9
		2017	Zai/planting pits	Water management	33%	3	67%	3
		2017	Ties ridges	Water management	42%	128	81%	81
		2017	Improved varieties	Genetic improvement	65%	100	87%	70
		2017	Integrated nutrient management	Nutrient management	27%	48	82%	44
		2017	Intercropping	Crop management	56%	101	79%	71
		2017	Crop residue incorporation	Soil management	12%	8	60%	5
		2017	Reduced tillage	Soil management	73%	56	83%	41
		2017	Home garden diversification	Crop management	71%	7	100%	4
		2017	Manure	Nutrient management	22%	128	91%	101
		2017	Tree planting	Agroforestry	27%	64	74%	42
Senegal	Kaffrine	2019	Farmer Managed Natural Regeneration	Agroforestry	59%	27	90%	21
		2019	Improved varities (maize, millet, groundnut)	Genetic improvement	95%	19	100%	19
		2019	Manure	Nutrient management	76%	58	100%	56
		2019	Manure + inorganic fert.	Nutrient management	100%	2	100%	3
		2019	Inorganic fert.	Nutrient management	55%	33	100%	24
		2019	Reduced tillage	Soil management	90%	30	97%	37
		2019	Tree planting	Agroforestry	100%	5	75%	4
		2021	Farmer Managed Natural Regeneration	Agroforestry	67%	6	90%	10
		2021	Improved varities (maize, millet, groundnut)	Genetic improvement	88%	24	100%	30
		2021	Manure	Nutrient management	62%	24	100%	36
		2021	Manure + inorganic fert.	Nutrient management	50%	2	100%	3
		2021	Inorganic fert.	Nutrient management	65%	20	93%	27
		2021	Reduced tillage	Soil management	80%	5	100%	5
		2021	Tree planting	Agroforestry	50%	2	100%	3
Niger	Fakara	2021	Improved varieties (millet, sorghum,cowpea, ol	Genetic improvement	73%	26	78%	23
		2021	Farmer Managed Natural Regeneration	Agroforestry	83%	24	96%	23
		2021	Half moon	Water management	20%	5	100%	3
		2021	Intercropping	Crop management	67%	66	73%	41
		2021	Manure	Nutrient management	35%	68	83%	30
		2021	Stone rows	Water management	50%	2	0%	0
		2021	Tree planting	Agroforestry	69%	16	75%	8
		2021	Zai/planting pits	Water management	12%	8	75%	4
		2021	Improved varieties	Genetic improvement	45%	101	57%	21
Mali	Cinzana	2021	Manure	Nutrient management	40%	10	91%	11
		2021	Contour bunds	Water management + Soil management	76%	67	66%	91
		2021	Improved seed (sorghum, millet, sesame, fonio	Genetic improvement	75%	12	92%	13
		2021	Farmer Managed Natural Regeneration	Agroforestry	79%	48	97%	39
		2021	Integrated nutrient management	Nutrient management	0%	1	100%	1
		2021	Intercropping	Crop management	94%	83	68%	98
		2021	Manure + inorganic fert.	Nutrient management	93%	29	71%	38
		2021	Inorganic fert.	Nutrient management	100%	49	63%	81
		2021	Tree planting	Agroforestry	50%	2	100%	2

Country	CSV site	Year	CSA practices (Workingpaper)	Theme	Gender outcomes perceived by female			
					Unaffected/ Reduced labor		Increased decision making/control on CSA Resources	
					%	N	%	N
South Asia								
Bangladesh	Barisal	2018	Vegetable tower	Crop management	0%	0	100%	47
		2018	Fish microhabitat	Animals	19%	21	90%	21
		2018	Fish microhabitat (home)	Animals	30%	27	95%	19
	Khulna	2018	Vegetable tower	Crop management	2%	57	100%	56
		2018	Rainwater harvest	Water management	38%	16	100%	14
		2018	Fish microhabitat	Animals	22%	23	91%	23
Nepal	Bardiya	2018	Improved seed	Genetic improvement	76%	46	96%	28
		2018	Intercrop + improved seeds	Crop management and genetic improvement	59%	39	89%	19
		2018	Reduced tillage	Soil management	100%	9	100%	6
		2018	Homegarden diversification (+ Solar Irrigation)	Water management + Crop management + En	27%	11	100%	10
		2018	System of Rice Intensification	Crop management	60%	15	100%	8
	Mahottari	2018	Improved seed	Genetic improvement	99%	70	68%	38
		2018	Integrated Pest Management	Crop and nutrient management	55%	33	80%	20
		2018	Reduced tillage	Soil management	100%	3	50%	2
		2018	Homegarden diversification (+ Solar Irrigation)	Water management + Crop management + En	55%	44	79%	33
		2018	Sprinkler Irrigation	Water management	80%	5	60%	5
	Nawalparasi	2018	Manure	Nutrient management	100%	27	100%	18
		2018	Improved seed (maize)	Genetic improvement	44%	59	87%	31
		2018	Improved seed (rice)	Genetic improvement	97%	32	100%	12
		2018	Reduced tillage	Soil management	86%	7	33%	3
		2018	System of Rice Intensification	Crop management	25%	4	100%	2
		2018	Homegarden diversification (+ Solar Irrigation)	Water management + Crop management + En	97%	29	92%	24

Country	CSV site	Year	CSA practices (Workingpaper)	Theme	Gender outcomes perceived by female			
					Unaffected/ Reduced labor		Increased decision making/control on CSA Resources	
					%	N	%	N
Latin America								
Nicaragua	El Tuma-La Dalia	2018	Home garden diversification	Crop management	77%	52	84%	31
		2018	Tree planting	Agroforestry	48%	27	73%	15
		2018	Crop residue incorporation	Soil management	74%	68	88%	34
		2018	Water protection on-farm	Water management	73%	33	100%	9
		2018	Organic fertilizer	Crop and nutrient management	55%	20	100%	13
		2018	Improved and biofortified varieties	Genetic improvement	84%	31	90%	21
Colombia	Cauca	2018	Improved varieties (beans)	Genetic improvement	0%	0	50%	2
		2018	Organic fertilizer	Nutrient management	61%	33	88%	26
		2018	Home garden diversification	Crop management	65%	31	90%	29
		2018	Living Fences or Hedgerows	Agroforestry	100%	1	0%	0
		2018	Crop residue incorporation	Soil management	100%	2	100%	1
		2018	Rainwater harvest	Water management	78%	37	92%	25
		2019	Crop residue incorporation	Soil management	100%	6	100%	3
		2019	Improved varieties (beans)	Genetic improvement	71%	14	100%	1
		2019	Home gardens diversification (+ water harvest)	Crop management	33%	3	100%	2
		2019	Intercropping	Crop management	71%	28	100%	4
		2019	Living Fences or Hedgerows	Agroforestry	40%	5	100%	1
		2019	Organic fertilizer	Nutrient management	64%	11	100%	3
		2019	Rainwater harvest	Water management	0%	2	100%	1
		2019	Rotation	Crop management	50%	4	100%	2
Guatemala	Olopa	2018	Improved varieties (beans)	Genetic improvement	92%	24	100%	16
		2018	Home gardens diversification (+ water harvest)	Crop management	91%	22	100%	19
		2018	Home garden diversification	Crop management	71%	96	96%	67
		2018	Drip irrigation	Water management	72%	25	87%	15
		2020	Agroecological management	Crop and nutrient management	96%	23	87%	15
		2020	Home garden diversification	Crop management	100%	4	100%	2
		2020	Living Fences or Hedgerows	Agroforestry	92%	24	95%	19
		2020	Rainwater harvest	Water management	97%	33	93%	14
		2020	Rainwater ponds for irrigation	Water management + Aquaculture	100%	5	83%	6
		2020	Reservoir for fish production and irrigation	Water management + Aquaculture	86%	7	100%	5
		2020	Rotation	Crop management	94%	17	100%	7
		2020	Trenches	Water management + Soil management	80%	20	94%	18
		2020	Reduced tillage	Soil management	95%	19	87%	15
		2021	Home garden diversification	Crop management	79%	47	94%	32
		2021	Rainwater harvest	Water management	78%	40	94%	34
		2021	Improved varieties (beans)	Genetic improvement	70%	10	100%	10
		2021	Rainwater ponds for irrigation	Water management + Aquaculture	57%	14	86%	14
		2021	Reservoir for fish production and irrigation	Water management + Aquaculture	76%	25	90%	20
		2021	Trenches	Water management + Soil management	85%	48	90%	42
		2021	Living Fences or Hedgerows	Agroforestry	81%	53	98%	48
		2021	Agroecological management	Crop and nutrient management	76%	21	100%	22
		2021	Reduced tillage	Soil management	79%	39	98%	48
		2021	Rotation	Crop management	79%	39	95%	41
		2021	Cisterns and tanks	Water management	100%	2	100%	3
		2021	Tree planting	Agroforestry	81%	31	100%	25
		2021	Trenches	Water management + Soil management	79%	24	96%	26
		2021	Improved Cookstoves	Energy	93%	29	93%	14
Honduras	Santa Rita	2018	Home garden diversification	Crop management	72%	18	50%	6
		2018	Solar dryer	Postharvest	100%	1	0%	0
		2020	Rainwater ponds for irrigation	Water management + Aquaculture	60%	5	100%	1
		2020	Agro-ecological pest/disease management	Crop and nutrient management	94%	16	33%	3
		2020	Improved and biofortified varieties (beans)	Genetic improvement	100%	14	100%	7
		2020	Home garden diversification	Crop management	96%	48	83%	6
		2020	Rainwater harvest	Water management	100%	26	75%	4
		2020	Rainwater ponds for irrigation	Water management + Aquaculture	100%	5	100%	1
		2020	Shade management	Agroforestry	90%	20	83%	12
		2020	Terraces	Water management + Soil management	92%	13	100%	3
		2021	Home garden diversification	Crop management	84%	55	68%	25
		2021	Terraces	Water management + Soil management	57%	7	83%	6
		2021	Improved varieties (maize)	Genetic improvement	96%	48	69%	16
		2021	Improved varieties (beans)	Genetic improvement	100%	43	65%	17
		2021	Agroecological management	Crop and nutrient management	73%	11	88%	8
		2021	Rainwater harvest	Water management	100%	38	60%	20
		2021	Rainwater ponds for irrigation	Water management + Aquaculture	100%	13	100%	5
		2021	Reservoir for fish production and irrigation	Water management + Aquaculture	100%	12	80%	5
		2021	Home gardens diversification (+ water harvest)	Crop management	82%	11	80%	5
		2021	Tree planting	Agroforestry	100%	46	67%	9
		2021	Improved Pasture	Animals	100%	4	100%	1
		2021	Shade management	Agroforestry	60%	25	80%	20

References

Aggarwal, Pramod K.; Jarvis, Andy; Campbell, Bruce M.; Zougmoré, Robert B.; Khatri-Chhetri, Arun; Vermeulen, Sonja J.; Loboguerrero, Ana Maria; Sebastian, Leocadio S.; Kinyangi, James; Bonilla-Findji, Osana; Radeny, Maren; Recha, John; Martinez-Baron, Deissy; Ramirez-Villegas, Julian; Huyer, Sophia; Thornton, Philip; Wollenberg, Eva; Hansen, James; Alvarez-Toro, Patricia; Aguilar-Ariza, Andrés; Arango-Londoño, David; Patiño-Bravo, Victor; Rivera, Ovidio; Ouedraogo, Mathieu; Yen, Bui Tan. 2018. The climate-smart village approach: framework of an integrative strategy for scaling up adaptation options in agriculture . Ecology and Society 23(1): 14.

Ashby J, Kristjanson P, Thornton P, Campbell B, Vermeulen S, Wollenberg E. 2012. CCAFS Gender Strategy, 2012. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Bayala J, Zougmoré R, Ky-Dembele C, Bationo BA, Buah S, Sanogo D, Somda J, Tougiani A, Traoré K, Kalinganire A. 2016. Towards developing scalable climate-smart village models: approach and lessons learnt from pilot research in West Africa. ICRAF Occasional Paper No. 25. Nairobi: World Agroforestry Centre.

Bayot RS, Palima CM, Punzalan BR, Vidallo RR, Gonsalves JF. 2021. A Gender-responsive approach to Community-Based Adaptation in Guinayangan, Quezon. CCAFS Working Paper No. 374. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Béné, C., Frankenberger, T., & Nelson, S. 2015. Design, monitoring and evaluation of resilience interventions: conceptual and empirical considerations.

Birir A. 2020. Effect of social capital on adoption of climate-smart agriculture in Nyando Basin, Kenya. CCAFS Info Note. Wageningen, The Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Bonilla-Findji O, Martinez-Baron D, Martinez JD, Castellanos A, Eitzinger A, Andrieu N, Le Coq JF, Howland F, Muriel J, Acosta M. 2020. FINAL TECHNICAL PROJECT REPORT: Generating evidence on gender sensitive Climate-Smart Agriculture to inform policy in Central America. CCAFS report. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Bullock R, Huyer S, Shai T, Nyasimi M. 2020. The CCAFS Youth and Climate-Smart Agriculture (CSA) Strategy. CCAFS Working Paper no. 332. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

CCAFS. 2011. CCAFS Program Plan Summary. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

CCAFS. 2016. Full Proposal 2017-2022 for Phase II of the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

CCAFS. 2021. Gender profile of climate-smart agriculture in Ghana. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), West Africa Program, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT).

CCAFS, BAIF. 2020. Gender Integration for Inclusive Adaptation to Climate Risks. The CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

CCAFS SEA. 2021. Integrating Gender and Social Inclusion (GSI) in Climate-Smart Village (CSV) Establishment. Hanoi, Vietnam: Ministry of Agriculture and Rural Development (MARD) and the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) in Southeast Asia.

Chanana N, Khatri-Chhetri A, Pimpale A, Joshi R, Saini S, Shirsath PB, Joshi AK, Aggarwal PK. 2020. Project completion report: Scaling up resilient agricultural practices, technologies and services in the vulnerable areas of India. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Devereux T. 2014. Gender Dynamics in the Adoption of Climate Adaptation Practices: A Case Study in the Cauca Department of Colombia. Field Practicum Report for Master of Sustainable Development Practice Degree, University of Florida: Gainesville.

Eam, D. 2019. Women and Youth as Catalysts of Climate-Smart Agriculture in Cambodia. CGIAR CCAFS.

FAO. 2020. Pathways to sustaining peace at the Food and Agriculture Organization of the United Nations (FAO). Accessed via

https://www.un.org/peacebuilding/sites/www.un.org.peacebuilding/files/fao_-_peacebuilding_and_sustaining_peace_thematic_paper_1.pdf

Ferrer AJG, Bernardo EBV. 2020. Outcomes of CCAFS Work in Vietnam. Hanoi, Vietnam: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Förch W, Sijmons K, Mutie I, Kiplimo J, Cramer L, Kristjanson P, Thornton P, Radeny M, Moussa A, Bhatta G. 2013. Core Sites in the CCAFS Regions: East Africa, West Africa and South Asia, Version 3. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Huyer S. 2016. Closing the gender gap in agriculture. Gender, Technology and Development 20(2):105–116.

Huyer S, Campbell BM, Hill C, Vermeulen S. 2016. CCAFS Gender and Social Inclusion Strategy. Working Paper no. 171. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Huyer S, Simelton E, Chanana N, Mulema AA, Marty E. 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).

IPCC, 2014: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 1132 pp.

IIRR. 2019. Climate Smart Agriculture: Models for Empowering Women Livestock Producers. Cavite, Philippines: International Institute of Rural Reconstruction (IIRR).

Khatri-Chhetri A, Regmi PP, Chanana N, Aggarwal PK. 2020. Potential of climate-smart agriculture in reducing women farmers' drudgery in high climatic risk areas. Climatic Change 158:29-42.

Mercado L, Ospian A, Suchini JG. 2019. Reporte Anual Monitoreo 2018: Territorio Sostenible Adaptado al Clima de Olopa, Guatemala. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Prisma Group. 2009. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine*, *6*(7), e1000097.

Nelson S, Huyer S. 2016. A Gender-responsive Approach to Climate-Smart Agriculture: Evidence and guidance for practitioners. Climate-Smart Agriculture Practice Brief. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Ojango JMK, Audho J, Oyieng E, Recha J, Muigai AWT. 2018. Innovative use of sheep and goats by women in climate smart villages in Kenya. Proceedings of the World Congress on Genetics Applied to Livestock Production, Volume Genetic gain - Strategies for Local Breeds 1: 985.

Quinlan, A. E., Berbés-Blázquez, M., Haider, L. J., & Peterson, G. D. 2016. Measuring and assessing resilience: broadening understanding through multiple disciplinary perspectives. *Journal of Applied Ecology*, *53*(3), 677-687.

Sanogo D, Ndour YB, Sall M, Toure K, Diop M, Camara AB, N'Diaye O, Thiam D. 2017. Participatory diagnosis and development of climate change adaptive capacity in the groundnut basin of Senegal: building a climate-smart village model. Agriculture & Food Security 6-13.

Simelton E, Aus der Beek R, Duong TM, Le TT, Le XH, Madsen EJ, Nguyen YT, Noorlander J. 2019. Participatory agro-climate information services: A key component in climate resilient agriculture. CCAFS Policy Brief No. 13. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Smith, A. 2017. The Art Of Adaptation: Engaging Youth with Climate-Smart Solutions. CGIAR CCAFS.

Tavenner K, Cramer L, Thornton P, Huyer S. 2020. From sub-IDOs to Impact: A Guide to Developing Gender-related Policy Indicators in CCAFS. Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).

Vernooy R, Le Kai Hoan, Nguyen Tuan Cuong, Bui Le Vinh. 2018. Farmers' own assessment of climate smart agriculture: Insights from Ma village in Vietnam. CCAFS Working Paper no. 222.

Wageningen, the Netherlands: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS).