

Strategic Roadmap to Mainstream Gender-smart Investments to Scale Climate-smart agriculture in sub-Saharan Africa



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Highlights

- Sub-Saharan African agri-food systems are threatened by climate change at a time when demand for food is increasing and global markets are disrupted. The result is loss of livelihoods and growing unemployment, hunger and malnutrition. Women are disproportionately affected, yet have limited opportunities to participate in adaptation efforts.
- Mainstreaming gender-smart investments in climate-smart agriculture (CSA) presents great opportunities to mitigate risks, amplify impacts, and reduce gender inequality. This can better inform investment decisions and identify market opportunities by focusing on:
 - Building capacity and increasing access to finance for women-owned and women-led agricultural small and medium enterprises (SMEs)
 - Promoting gender equality within agribusinesses and across their value chain partners
 - Offering products or services which significantly improve the lives of women and girls.
- CGIAR research has identified four key dimensions for promoting gender equality in the context of CSA:
 - Participation in decision-making at the household, community, national and global levels
 - Access to, control of, and ability to use productive resources such as agro-climatic information, technology, credit and income
 - Decreased workloads that free up time and ease physical burdens
 - Collective action as a platform for women to share information and resources, support each other, express their voice, and participate in community decision making.
- Successful mainstreaming of gender-smart CSA investments requires four interdependent actions:
 - **CAPACITY BUILDING:** Scaling gender-smart CSA options requires building capacities of all actors in the food ecosystem, including farmers, SMEs, corporations, financiers and public bodies.
 - **GENDER-RESPONSIVE PRODUCTS AND PROGRAMS:** As gender norms and biases exist across societies, organizations, and systems, gender analyses are needed to identify gaps, develop innovative products, and transform processes and value chains to foster gender equality.
 - **PARTNERSHIPS AND ENGAGEMENT:** Partnerships to leverage resources and knowledge are crucial for faster collective action.
 - **SEX-DISAGGREGATED DATA COLLECTION AND ANALYSIS:** Developing and using sex-disaggregated data is essential to identify new gender-smart CSA business models and investment strategies.



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1. Introduction

The agricultural sector plays a key economic role in most developing countries. It provides livelihoods for some of the most vulnerable populations. In many sub-Saharan African countries, it contributes as much as 40% of the GDP. But the agricultural sector is increasingly threatened by rising temperatures and weather variability. Agri-food systems are responsible for one-third of global greenhouse gas (GHG) emissions (Crippa et al., 2021).

Climate-smart agriculture (CSA) has the potential to tackle the environmental, social, and economic challenges posed by climate change by re-orienting agricultural systems to strengthen their adaptive capacities, and efficiently support food and livelihood security (FAO, 2013a). CSA “promotes coordinated actions by farmers, researchers, private sector, civil society and policymakers towards climate-resilient pathways”(Lipper et al., 2014:1068)

Women contribute over 50% of food produced globally and represent 40-80% of the agricultural labor force in sub-Saharan Africa (SSA). But women farmers have lower rates of agricultural productivity than their male counterparts. These gaps are considerable, ranging from 20% to 30%. While women are key contributors to agri-food systems, their productivity and ability to innovate, implement and lead climate solutions is limited due to inequitable access to inputs, information, and finance (UN Women and UNDP-UNEP PEI, 2015). These gaps are exacerbated by climate change because the same inequalities increase women’s vulnerability to climate shocks and lower their adaptive capacity to climate change challenges.

Access to finance remains a key challenge to increasing women’s resilience to climate change. Two interrelated finance gaps are apparent. First, smallscale farmers, of which 50% are women, need approximately USD 240 billion globally to adapt to climate change and build their long-term resilience (Shakhovskoy et al., 2019). Secondly, women-owned agri-SMEs operating in Africa face a USD 15.6 billion financing gap to scale, and to invest in technology and logistics necessary to reach, service or trade with remote farmers (A2F Consulting, 2016).

Climate finance has seen a steady increase in recent years. Up to 2020, USD 632 billion had been deployed through financial vehicles such as the [Green Climate Fund](#) and the [Adaptation Fund](#) to support mitigation of, and adaptation to climate change (Climate Policy Initiative, 2021). Yet less than 3% of climate finance is invested in agriculture, and women-run businesses account for only 2% of all



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venture capital investments worldwide (Chirac, Naran, Falconer, 2020). This is a major market failure that perpetuates the gender gap.

There are some initiatives promoting gender-smart investments such as the [2XChallenge](#) by the development finance institutions of the G7 countries and Affirmative Finance Action for Women in Africa ([AFAWA](#)), supported by the African Development Bank. However, despite these efforts, women in agriculture, food, forestry and fisheries receive only 7% of total agriculture investments worldwide (FAO, 2013b; Shaw, Obanubi, Tyler, 2019). This limits women's opportunities to participate in climate change adaptation efforts.

We urgently need to find solutions to mainstream gender-smart CSA investments at scale while also responding to wider agricultural sector investment bottlenecks. These include: a) the lack of a deep pipeline of women-led or gender-responsive business models, b) perceptions of high-risk and lack of sex-disaggregated data, c) limited aggregating options and high transaction costs when

financing women, and d) an unfavorable enabling environment (Millan, Limketkai, Guarnashelli, 2019).

Channelling climate finance to tackle the funding gaps of women smallholder farmers and women-owned agricultural SMEs will require the development of innovative gender-smart financing options. Leveraging finance to support women can help unlock significant opportunities to strengthen climate innovation and deliver stronger, and more equitable climate and environmental outcomes.

This paper provides a roadmap to guide different ecosystem actors, including public and private investors, banks, corporations, NGOs, and governments, on how to scale CSA for resilient agri-food systems and gender equality through four interdependent actions: 1) building internal capacity in CSA and gender-smart approaches, 2) creating partnerships for success, 3) developing gender-responsive products and programs, and 4) leveraging sex-disaggregated data for analysis and decision making.

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2. Methodology

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This work builds on secondary research from CGIAR and FAO and leaders in the gender smart investment landscape such as 2X Collaborative, a global industry body for gender lens investing, and the Gender & Climate Investment Working Group, a global field initiative for the deployment gender-smart capital at scale. We reviewed 40 sources to understand the current state of gender-smart investing globally and in Africa, to assess the progress that has been made, and to identify the gaps and actions

needed to mainstream gender-smart investing to scale CSA.

Key informant interviews were also conducted with promising businesses in four African countries that are adopting CSA practices to generate climate and gender returns. The analysis focused on the challenges they face as women agri-entrepreneurs and how access to appropriate financial options can assist in scaling these business models.

3. The Opportunities for Gender Smart Investing in Climate-Smart Agriculture

Transforming the food, land, and ocean use systems constitutes a huge market opportunity, potentially generating USD 3.6 trillion of additional revenues or cost savings by 2030, while also creating 191 million new jobs (FAO, 2011). A gender-responsive approach aimed at closing the gender productivity gap in agriculture entails recognizing and addressing the needs and priorities of both women and men in the design and application of CSA solutions. Mainstreaming gender-smart investments to scale CSA business models can help mitigate risks, identify new investment opportunities, and amplify impacts.

Gender-smart investing is defined as an investment strategy that seeks

to intentionally and measurably use capital to address gender disparities and better inform investment decisions (British International Investment, no date). Gender analysis can highlight opportunities and reveal risks that can strengthen investment decision-making to achieve greater financial and social outcomes.

By applying gender-smart approaches to investment decision-making, we can increase women's access to the resources and information they need to adapt to climate change and close the productivity gap. Furthermore, closing the gender gap in agricultural production would reduce poverty and result in 100-150 million fewer hungry people in the world (FAO, 2011).

Need for gender-smart CSA options for female farmers: developing tailored solutions

The goal of CSA is to help farmers adapt to climate change and manage climate risk by implementing strategies to sustainably increase productivity, build the resilience of farming systems, and reduce greenhouse gas emissions (Shirsath and Aggarwal, 2021). CSA technologies and practices are quite diverse from a business model development perspective, but can be grouped into five clusters: water management, crop tolerance to stress, intercropping, organic inputs, and conservation agriculture (Sova et al., 2019).

CSA is not a one size fits all solution. To ensure adoption and sustainability of CSA practices, gender dimensions must be considered. Approaches to mitigate and adapt to climate change need to



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address both women's and men's roles, vulnerabilities, and constraints. They need to promote everyone's capacity for resilience, but must particularly support women in responding to climate change impacts. Their effectiveness depends on local agricultural characteristics; alignment with the local context is a prerequisite for success. Sustainability in CSA involves consideration of the socio-economic and cultural conditions, vulnerabilities, opportunities, and constraints faced by different groups in the value chain, especially women (Twyman et al., 2014).

Women farmers are less able to adapt to climate change than men as they have limited access to information, technology, inputs and credit. They tend to have heavier workloads due to their reproductive roles while also having little decision-making power. Therefore, women need additional support to adopt climate adaptation and mitigation strategies.

CGIAR research identified four key dimensions for promoting gender equality in the context of CSA (Huyer et al., 2021; Huyer, 2021):

1. Participation in decision making at the household, community, national and global levels
2. Access to, control of, and ability to use productive resources such as agro-climatic information, technology, credit, and income
3. Decreased workloads to free up time and ease physical burdens
4. Collective action as a platform for women to share information and resources, support each other, express their voice, and participate in community decision making.

Gender-responsive approaches to climate-smart agriculture

It is important that women be equal partners to create climate resilience for all. Once the CSA practices are identified

and prioritized in a context, the following steps can ensure they are gender-responsive, i.e., likely to produce effective and equitable outcomes while reducing the gender productivity gap in the context of climate change (Nelson and Huyer, 2016):

1. **Gender analysis:** To understand roles and responsibilities, decision-making, and access to resources and information, gender analysis explores the differential vulnerabilities of men and women to risk, opportunities and benefits, power relations within the household and the community, and access to information.
2. **Constraints to uptake of practices are addressed:** Findings of the gender analysis are used to understand where there may be constraints limiting the uptake of the CSA practice. These may include unequal roles in decision-making, unequal access to information or credit, and unequal ownership of land.
3. **Participation and engagement:** Both female and male farmers are involved in testing and adjusting CSA practices to meet their needs, preferences, and opportunities, reducing existing gender inequalities and discrimination.
4. **Immediate benefits to both men and women:** Such benefits include improvements in agricultural yields; reduction in the time, energy, and labor spent by food producers, particularly women, on agricultural activities; and increases in women's access to, and control of, agricultural inputs and income.
5. **Long-term benefits:** The practice contributes in the longer-term to improving equality between men and women. It should enhance both men's and women's resilience and agricultural productivity, increase women's control of resources, and increase participation of women in decision-making at both household and community levels.

When CSA options are properly tailored to women farmers' needs and prioritized, developed and promoted with gender equality in mind, this can lead to increased adoption of CSA practices by women, higher incomes, and less vulnerability to climate shocks (Ouedraogo, Fall, Chabi, 2020). For example, CGIAR worked with women-led organizations or Self-Help Groups (SHGs) in India to build their capacity to use climate-smart practices and to access climate information. One year later, these farmers reported an increase of more than 40% in household income generated from rice and wheat production. When analyzed, the successful adoption of the CSA practices relied on (Huyer, 2021):

- **Organization and capacity building:** The SHGs participated in village climate management committees to manage and implement CSA practices. They also participated equally — and in some cases more than men — in capacity-building, technology prioritization, and community consultations.
- **Availability of labor-reducing CSA technologies:** Women-led service centers were set up to rent out climate-smart tools that reduced women's work in the labor-intensive activities of weeding (manual weeder for paddy), water management (solar pumps) and harvesting (harvesting machinery).
- **Climate information services:** Women farmers became aware of and implemented new practices learned through agro-advisory and weather information services. They expanded their information networks, regularly using advisories on weather, markets, crop cultivation, and new technologies.
- **Empowerment:** Collective action became a platform for gender equality, agency, and resilience. Women gained better access to information, their production increased, their workloads decreased, and they played a leading role in community decision-making.

Need for gender-smart financial mechanisms/ investments

There is growing global investor interest in directing capital towards enhancing the lives of women and girls while also delivering financial returns. Investors are evaluating companies' ethical impacts and sustainability against Environmental, Social and Governance (ESG) standards with the idea that companies are more likely to succeed and deliver strong returns if they create value for all their stakeholders – employees, customers, suppliers and the wider society, including the environment – and not just the company owners (Investopedia Team, 2022). Moreover, gender diversity has been proven to boost business performance and returns to shareholders, particularly through gender-balanced boards and senior leadership teams (Hunt, Layton and Prince, 2015). Venture capital funds like First Round Capital have found that women-led companies outperform their male counterparts by 63% (DuBow, 2017). African companies with at least 25% of board positions filled by women achieved on average 20% higher operating margins than the industry average (Moodley et al., 2016).

Innovative gender-smart investing can unlock economic value through empowering women. Gender-smart investing integrates gender-based factors into an investment strategy and analysis to increase returns and impact while working towards gender equality and empowerment (Gender Smart, 2021). Gender-smart investing helps investors make more informed investment decisions, identify market opportunities and mitigate risks. The approach promotes gender equity by investing in businesses which:

- Are women-owned or women-led
- Promote workplace equality within the organization and across its value chain partners (suppliers and distributors)
- Offer products or services which significantly improve the lives of women and girls.

Improved gender equality will be necessary to support population-wide resilience to climate change, sustainable economies, and equitable access to climate solutions. This requires that capital providers and large food and agriculture companies take a gender-smart approach that mainstreams gender analysis in investment decision-making processes, from providing the necessary capital to women-owned and led companies, to ensuring that women farmers are empowered across the entire food system (Aslam et al., 2021).

Supporting women farmers and women-led SMEs in agricultural value chains

Agribusinesses link farmers to markets, assure quality control, and provide logistical and other support services across agricultural value chains. Costly effects of climate change such as crop failure and water source depletion are leading more and more agribusinesses



to try adaptive technologies and innovations. In piloting climate-smart practices, agribusinesses that invest in women's participation can ensure their own sustainability while also contributing to gender equality (Duong, Simelton, Le, 2016).

Table 1 summarizes the results of a study by Value for Women (2018) highlighting the commercial benefits for agribusinesses that ensure CSA practices and information are accessible to both women and men farmers.

Table 1: Commercial benefits of gender-responsive CSA

BENEFIT	EXAMPLE
<p>Inclusion of women farmers increases the number of suppliers, reduces supply variability, and offers more consistent, better quality, cost-effective local sourcing.</p>	<p>Southern Africa Newcastle Disease Program found that livestock managed by women were relatively healthier than that managed by men. To tackle Newcastle disease in chickens, the program focused on recruiting more women as vaccinators, which resulted in a lower rate of disease outbreaks amongst the region's animal population.</p>
<p>Gender-inclusive activities such as offering CSA financing, contracting and training to women's farmer groups and hiring female extension agents can contribute to closing the gender productivity gap and increasing yields of raw materials available to agribusinesses.</p>	<p>Members of Cooperativa del Sur del Cauca (COSURCA) (women coffee farmers) in Peru implemented rainwater harvesting measures to improve coffee yields during times of drought and even went a step ahead in adopting sustainable/ environmentally friendly practices in their kitchens by moving away from wood or coal stoves to electric/ecologically sound stoves.</p>

BENEFIT	EXAMPLE
<p>Women’s leadership across the value chain can reduce management and coordination costs for agribusinesses as well as improve conflict resolution with farmers.</p>	<p>In Kenya, Finlays’ out-grower management team has found that female committee representatives tend to be better at “leadership” than men. If there is a problem or dispute with an out-grower member, female representatives are more likely to seek the source of the problem and help resolve the dispute. In contrast, male representatives are often reluctant to share too much information with the company.</p>
<p>Gender-inclusive agribusinesses may enjoy strong brand equity and obtain access to international certifications such as the Fair-Trade Association. These opportunities can improve prices and profit margins because they create access to premium retailers.</p>	<p>APROCASSI in Peru launched a brand of coffee sourced exclusively from women farmers which is sold at Whole Foods, earning them an additional USD 10,000, or 12% more per container.</p>

Source: Adapted from *Value for Women* (2018).



Successful gender smart investing in the agricultural sector

The 2X Challenge is the present global industry standard for gender-smart investing. It was established by the development finance institutions of the G7 countries at their 2018 Summit with a goal to deploy USD 15 billion of capital to women-led businesses globally by the end of 2021 (2X Climate Task Force, 2021). Its Climate Finance Task Force has defined the 2X criteria for investors and banks that want to apply a gender smart investing approach to opportunities in sustainable agriculture, food, and forestry sectors by offering them a basis for evaluation on four dimensions: entrepreneurship, leadership, employment, and consumption (2X Challenge, 2021). These criteria are listed in Table 2.

Table 2: Gender-smart and climate-smart assessment using the 2X criteria*

CRITERIA	THRESHOLDS
Entrepreneurship	Is the company woman-founded or woman-owned (+51%) with a climate-smart business model?
OR	
Leadership	Does the climate-smart agribusiness have at least 30% women on its board and in senior management positions?
OR	
Employment:	Are there more than 30% of women across its employees and supply chain partners and does it promote workplace gender equity?
OR	
Consumption	Does it deliver products or services that disproportionately benefit female smallholder farmers?

**Only 1 YES is required to qualify as a 2X deal or transaction
Source: 2X Challenge (2021)*

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Table 3 lists examples of innovators leading the way in using gender-smart investments in the agricultural sector.

Table 3: Leaders of gender-smart investing in the agricultural sector in Africa

TYPE OF ACTOR	INVESTMENT AMOUNT / TYPE	GENDER CRITERIA	DESCRIPTION
Development Bank	USD 20 million loan and technical assistance	100% of amount to benefit women farmers or women-led Agri SMEs	Through its Affirmative Finance Action for Women in Africa (AFAWA) , the African Development Bank provided a line of credit and technical assistance facility to Ecobank Ghana in order to help women farmers and women-led or -owned SMEs to access financing and skills they need to grow sustainably. The project is expected to benefit 400 women-led micro, small and medium enterprises.
Asset Manager	USD 100 million equity	100% to benefit women-owned, women-led, or women-serving SMEs	Alithea IDE is a private equity fund anchored by AfDB's AFAWA program. Alithea is investing exclusively in women-owned, women-led, or women-serving SMEs to generate financial returns and social impacts for communities in Africa, with operations in Nigeria, South Africa, Ghana, Zambia, Zimbabwe, and Lesotho. Gender-smart investing is applied in the screening process, due diligence, investment execution, and post-investment monitoring. The fund has invested in four companies; two of them are in the agribusiness sector.

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TYPE OF ACTOR	INVESTMENT AMOUNT / TYPE	GENDER CRITERIA	DESCRIPTION
Impact Investor	USD 35 million loan	Over 50% disbursed in loans to women-owned businesses	Root Capital is a non-profit impact fund investing in the growth of agri SMEs. Through its Women in Agriculture Initiative, it has been able to finance more than half a million women farmers to date. With this investment from the US International Development Finance Corporation, Root Capital will provide smaller loans and target early-stage enterprises that have been unable to secure financing because of inherent risks and unattractive returns.
Corporation	USD 17 million direct investment	40% of women in workforce	Miro Forestry is a sustainable forestry and timber business with plantations in Ghana and Sierra Leone with 20,00 hectares of standing forest. It obtained financing from development finance institutions including: British International Development formerly CDC Group plc, Institut de Financement du Développement Canada (FinDev Canada) and the Dutch Entrepreneurial Development Bank (FMO). Through its planting activities, Miro has prioritized improving women's access to jobs through targets and upskilling.

Source: Compiled by the authors.

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4. Constraints to Gender-smart Investing

Several serious constraints have been identified on both the demand and supply side that are preventing mainstreaming gender-smart investing in the agricultural sector. These constraints are discussed in this section.

Demand-side market failures reported by women entrepreneurs

Lack of gender-inclusive financing options: Women have specific needs and constraints when it comes to financial products, but they are often excluded for various reasons: cultural norms, lack of financial education, lack of collateral, poor understanding of financing procedures,

and inability to meet traditional banking requirements. For example, they often lack collateral to qualify for bank loans. Non-financial products such as crop insurance, market linkages, and guarantee schemes are often not available to enhance the success rate of women entrepreneurs. Women entrepreneurs often miss the opportunity to apply for special financing programs because they are unaware of them. The marketing strategies of traditional financial institutions are built around a client profile that rarely fits women entrepreneurs and farmers. They bypass the learning and information sharing circles that women prefer and trust such as business networks, self-help groups, women producer associations, and community peer groups.

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“The bank asks us to deposit a cash collateral contribution of 30% of the loan amount in addition to other guarantees for the medium-term loan, and this is very heavy for an agricultural enterprise of young people and women. All proceeds of equipment rentals and all our other transactions go through the same bank. With this track record, there should be better loan terms to invest in agricultural equipment for mechanization services providers like us.”

FATOUMATA DIARRA, Founder and Manager, CIE-KUMASE, equipment service provider, Mali.

Lack of information and knowledge:

Women entrepreneurs need capacity building to ensure that their businesses are investable from both a technical and a managerial standpoint. This constraint characterizes the agricultural sector in general because of the technical complexities of production, transformation, and food safety, which are necessary for a commercially viable product. Agricultural extension programs usually do not focus on female farmers' needs. For example, extension

workers may conduct training sessions at inconvenient times and locations for women farmers, preventing them from learning key techniques to enhance their farms.

Also, due to cultural and gender norms, women agri-entrepreneurs are often excluded from networks and facilities that could provide them with the necessary information and knowledge to scale their enterprises.

“My main challenge is that our current business model is heavily reliant on grants and partnerships which impacts the sustainability of the business. We are looking to scale but we want first to identify the right partners that can support us to develop the right business model.”

NDEYE AMY KEBE, Founder and CEO, Jokalante, *Climate Information Service Startup, Senegal*

Lack of support systems: Because of their reproductive responsibilities, such as child-rearing and unpaid household work, women need additional support to be fully present and effective in professional and business settings. Social institutions, policies and programs are often not gender-responsive and do not encourage or empower women's entrepreneurial aspirations.

The lack of childcare in rural areas is a constraint that traps women farmers in non-income generating household activities. Furthermore, there are very few mentorships and peer networks for women agri-entrepreneurs. These networks are an important source of inspiration and support that can help enhance their chances of success.

“We need a technical assistance grant for investment readiness, but I don't have the access to the right networks that could link me with the appropriate program and if they exist, they are very few to serve the growing number of startups in Africa.”

JOYCE KAMANDE, Co-Founder and COO, Safi Organics, *Organic Fertilizer Producer, Kenya*

Supply-side market failures

Lack of deep pipeline of women-led or gender-responsive business models

There are very few women-led companies and businesses that cater to women farmers at an investable stage. Many of those that do exist rely on subsidies; therefore, investors doubt the commercial viability and scalability of their business models. Some of these business models are still at an early stage and unproven for mainstream capital, especially in the context of CSA. The gender-responsiveness of the business models is often undocumented, making it hard to demonstrate that they qualify as an impact investment. The success of agricultural ventures often depends on technical assistance, particularly when smallholder farmers are involved. Traditional investors may not have the capability to support entrepreneurs in that capacity.

Perception of high-risk, aggravated by lack of data, especially sex-disaggregated data

One of the main constraints to mainstreaming investment in women-led agri-food businesses is the risks associated with the sector itself. Private investors consider agriculture to be risky, and climate change is an aggravating factor. Investors lack both the data and the technical capability to accurately assess these risks. This is compounded by the perception of women as high-risk borrowers. Lack of collateral, credit history and formal business registration, and lack of liquidity and available capital compel banks to charge high interest rates to women small business owners. Sex-disaggregated data on credit history and women's capacity for repayment in

less formal settings are not registered in the credit bureaus and public offices for recognition by formal lenders (Asian Development Bank, 2014). This lack of data artificially amplifies a perception of higher risk and lower risk-adjusted returns, which discourages capital deployment.

Limited aggregation options and high transaction costs when financing women

Investing in the agricultural sector involves high transaction costs and small ticket sizes due to scale, especially when engaging with rural farmers. For smallholder women farmers and early stage women-owned agri-SMEs, it is even more challenging to obtain financing. Limited options mean only short-term and expensive financing is available, while patient capital is needed for scaling. Some microfinance institutions have provided options for early-stage and short-term financing for women farmers and women-led micro enterprises. However, as women entrepreneurs' businesses grow, they need financial products and services that go beyond microcredit. Despite women entrepreneurs' excellent repayment records when running micro-businesses, they are not often graduated to larger individual or business loans (Athena Infonomics, 2015).

Investors prefer larger investment-grade assets with exit and liquidity features. It is often difficult to identify the appropriate financial models and mechanisms that fit the needs of both investors and investees. As a result, many transactions involve complex and/or bespoke terms and features, and smaller deals are difficult to aggregate and securitize.

“We face a lack of options to finance SAFI Organics’ expansion. For example, the loans available are high interest, 3-year terms designed for trading activities, and not suited for long-term investments within the agricultural sector and especially startups working with smallholder farmers.”

JOYCE KAMANDE, Co-Founder and COO Safi Organics, Organic Fertilizer Producer, Kenya

Need for a favorable enabling policy environment

When looking at the agri-food ecosystem, investors are concerned about the legal and regulatory framework as well as land rights and land tenure constraints. According to FAO and IFPRI (2018), globally, less than 15% of all landowners are women, and they are less likely than men to have a legal document proving

their ownership. To integrate women farmers into mainstream financing, legislation that guarantees women's access to land is crucial. Investors also seek support in risk-mitigating mechanisms from government programs, and incentives such as guarantees and subsidies for agricultural innovations, which can help catalyze investment in the agri-food sector.

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“Even though they represent more than 50% of the value chain actors, women farmers in COMACO have to fight against cultural norms for equality. Due to restrictive land rights, women farmers are not ensured sustainable long-term use of the land for their production activities. This constitutes one of the main challenges for the sustainability of their operations.”

PRUDENCE MUCHINOUTA, CFO, Community Markets for Conservation (COMACO), Zambia

5. Solutions to the Constraints Identified

Gender-smart investment roadmap by theme

We have identified four action areas as priorities for sustainable mainstreaming of gender-smart investment to scale CSA. They are: 1) capacity building, 2) partnerships and engagement, 3) gender-inclusive products and programs, and 4) sex-disaggregated data collection and analysis. As there are interdependencies in the actions of investors, ecosystem enablers, and governments, coordinated action is highly recommended across these themes.

Capacity building

Scaling gender-smart CSA options requires a comprehensive approach to building capacities across all actors, including farmers, SMEs, corporates, financiers and public bodies. CSA training and expertise are necessary to

understand how to develop and prioritize CSA practices, how to implement them at a large scale, and how to evaluate them. Capacity building on gender issues as well as hiring women staff will help create greater awareness and more consideration of gender dimensions in the agricultural sector and the financial sector.

Gender-responsive products and programs

There is a need to innovate and develop products, transformation processes and value chains that foster gender equality. As gender norms and biases exist across societies, organizations, and systems, gender analyses can be used to identify gaps and address their causes.

Partnerships and engagement

Because of the urgent need to scale CSA for strengthening food systems' resilience, as climate shocks are becoming more frequent and more consequential, partnerships to leverage resources and knowledge are crucial for faster collective action. Stakeholders from the financial sector, agribusinesses, climate experts, and gender specialists can partner to build on each other's core competencies. Partnerships are needed across all levels from the high-level policy environment down to value-chains and field activities.

Sex-disaggregated data collection and analysis

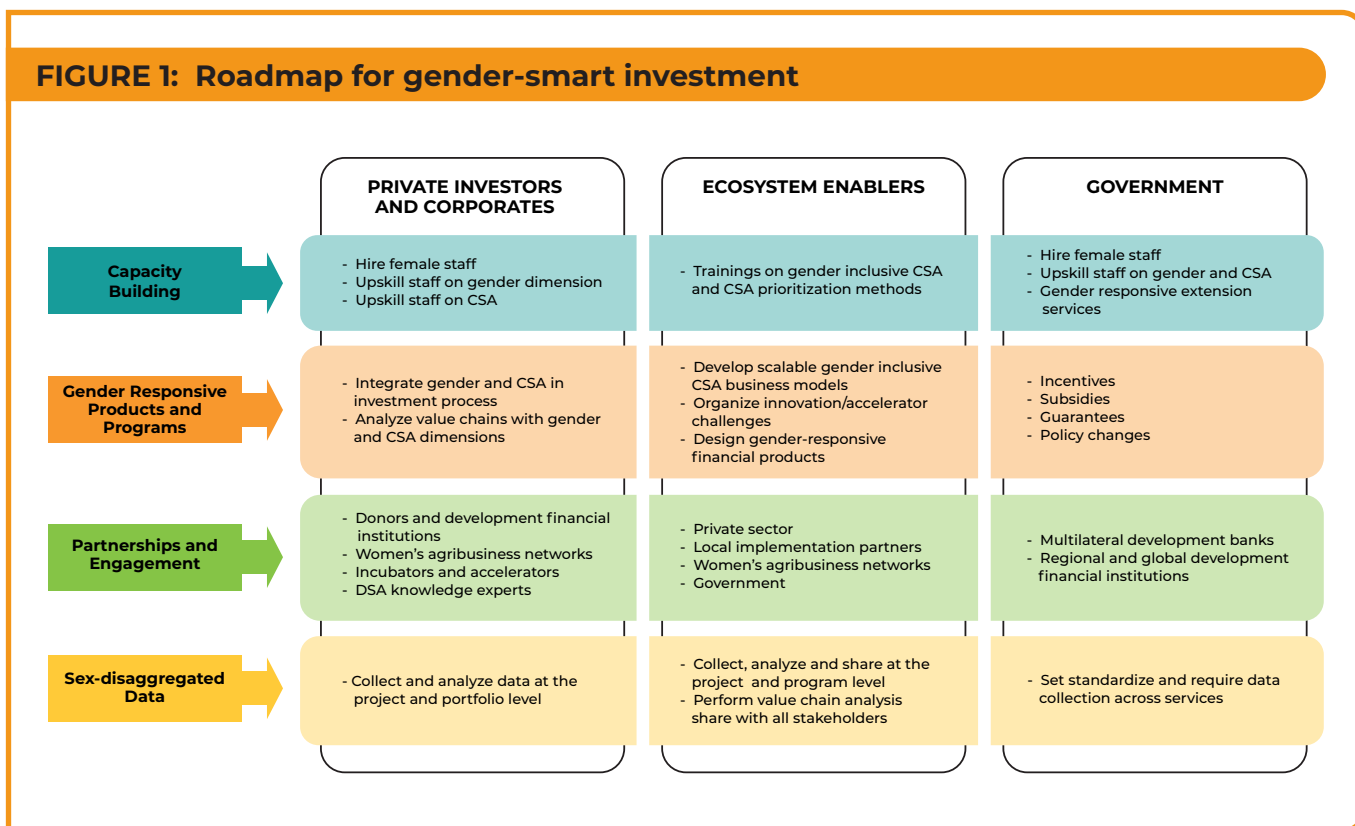
Data are critically important for informed decision-making. Systematic collection and analysis of sex-disaggregated data will help develop an understanding of gender gaps and demonstrating the gender impact of CSA business models. Using these data to create the evidence and share success stories of CSA business models can decrease the perception of risks involved with new investment strategies and provide a basis for other investors to draw upon when developing their own internal gender-smart investing initiatives.

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The roles of the private sector, ecosystem enablers and NGOs and governments vary (Figure 1). The next

three subsections provide further details on their respective roles in promoting gender-smart CSA investments.



Source: Elaborated by the authors.

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Roadmap for gender-smart investors: private investors and corporations

Capacity building

Private firms can take the initiative and build internal gender and CSA capacity. Possible actions include:

- Reinforce commitment throughout the internal workforce by hiring female staff, and targeting gender-balanced teams. The performance of gender-balanced teams is higher than single-gender teams. Furthermore, having women employees on investment teams can encourage a more gender-balanced ecosystem; for example, women are twice as likely to invest in women-founded enterprises and three times more likely to invest in a woman CEO (Anand, 2016).
- Train male and female staff on gender issues and dynamics. Set company-wide gender equality targets and communicate the gender equality strategy to employees, customers, and shareholders.
- Train agricultural investment and portfolio managers on the intersection of gender and CSA. This will help them gain a clearer understanding of the three pillars of CSA – productivity, adaptation, and mitigation – and how women in investee companies may be affected differently compared to their male counterparts. Through gender mainstreaming, asset managers can identify opportunities to realize financial performance goals such as accessing a larger pipeline for investment, reducing supply chain risks, and tapping into new market segments.

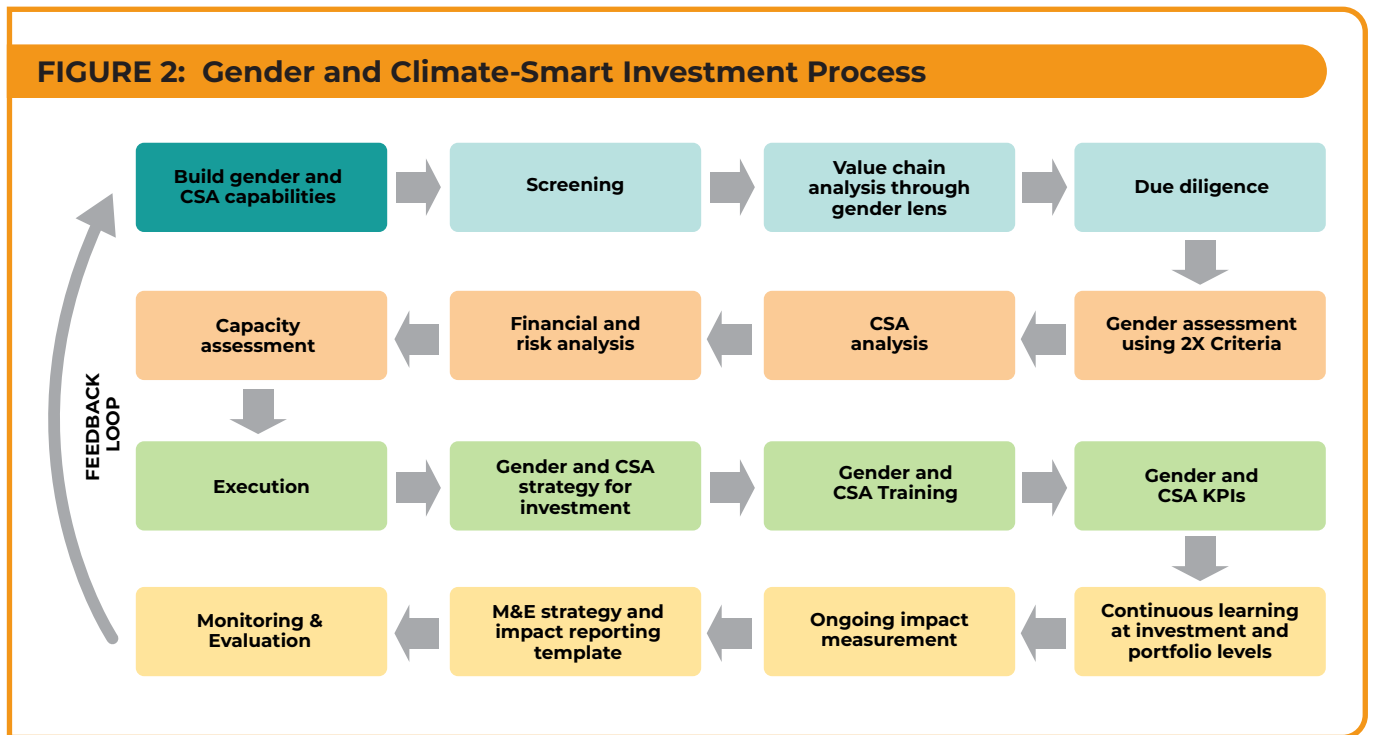
Gender responsive products and programs

Examples of actions to develop gender-responsive products and programs include the following:

- Integrate gender and climate dimensions into the investment process so that gaps at the investee

level are identified and a tailored action plan can be created to address such gaps following investment (see Figure 2).

- Define targets and key performance indicators that are aligned with standards such as the 2X Criteria as a starting point. For instance, investees should meet or commit to attaining one of the thresholds around entrepreneurship, leadership, employment, and consumption (see Table 2).
- Assess business models against impact criteria to make sure the business model integrates the pillars of CSA and gender dimensions. For instance, businesses that have programs for smallholder farmer engagement, develop social programs for stakeholders (childcare, training), promote gender and youth participation on their boards, management teams and among employees have a potential for more impact (Simon et al., 2021). Table 1 provides examples of the commercial benefits of gender-responsive CSA.
- Develop supportive post-investment processes that positively impact women supply chain actors, such as tailored capacity building, improving women's integration as smallholder suppliers or distributors, and mitigating gender-based violence.
- Develop products that better serve the needs of women investees, improve the socio-economic standing of women, and enable women to respond to risks more effectively.
- Improve women's involvement in product design and throughout the value chain of the product (manufacturing to after sales) so that women's preferences are considered throughout the product lifecycle.
- Advocate for gender-smart technical assistance to help asset managers and corporations meet and/or improve their gender commitments through adjusting internal practices and fostering gender inclusion.



Source: Adapted from Alitheia IDF Fund (2019)

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Partnership and engagement

Specific suggestions for creating partnerships include:

- Serve as implementing partner for donor- or government-funded programs designed to mitigate risks in investing in women-led agribusinesses. These include guarantees, subsidies, and technical assistance programs.
- Foster innovation by sponsoring and partnering with accelerator programs run by incubators with a focus on CSA business models that offer opportunities to women entrepreneurs and women graduates of science, technology, engineering, and mathematics. This will help build a pipeline of startups for potential investment.
- Gain visibility in established women-led SMEs that are looking to scale by developing partnerships with networks of women agri-entrepreneurs. For instance, [Lady Agri Impact Investment Hub](#) supports women agri-entrepreneurs in Africa and Small Island Developing States. [The Rallying Cry](#) is connecting international and development financial actors to a network of African women climate entrepreneurs. Another initiative is the [ITC She Trades Initiative](#), which connects 40,000 women-led businesses around the world to buyers, investors, and partners.
- Participate in the gender-smart community by engaging with other investors who already have gender-smart and climate-smart core

competencies and an actual track record. Leaders in the field include AfDB's AFAWA, Alithea Fund, and Root Capital (Table 3).

Sex-disaggregated data collection and analysis

Specific steps to generate and interpret sex-disaggregated data include the following:

- Collect sex-disaggregated data at all stages of the investment lifecycle. Table 4 provides a list of potential indicators. Analyzing these data will help identify gender-based opportunities and constraints and enable better implementation of gender-inclusive initiatives across investments and at portfolio level.
- Analyze the data collected in the due diligence process to develop value creation strategies that improve the gender, business, and CSA performance over the life of the investment.
- Monitor and report gender and climate impacts to access additional funds earmarked by governments, donors, and development banks for gender-smart CSA initiatives.
- Evaluate climate adaptation and gender equity on a continuum. It is important to integrate the insights from sex-disaggregated data as part of post-investment technical assistance, monitoring, and evaluation to ensure that impact objectives are met and that they have a positive spillover effect within the communities and the ecosystem.



Table 4: Gender-inclusive indicators to evaluate agribusinesses

CATEGORY	INDICATORS
<p>Supply Chain Agribusinesses engaged in off-taking from smallholder farmers can implement gender-responsive CSA through their supplier network. These indicators will indicate the gaps in opportunities between women and men farmers. Progress will enable a larger, reliable and sustainable supplier relationship for better consistency and volumes of agricultural products.</p>	<ul style="list-style-type: none"> • Number of suppliers, percentage of whom are women • Average yields for women and men, per hectare or input unit • Volumes rejected from women and men • Volumes purchased from women and men • Prices paid to women and men, per kilogram or type of produce • Number of female and male extension workers • Number of female and male farmers participants in training
<p>Operations In the processing and value addition context, agribusinesses can implement strategies to minimize waste and losses while creating opportunities and a safe working environment where women are valued and can thrive. These indicators help track productivity, as well as gender inclusion in hiring and promoting policies.</p>	<ul style="list-style-type: none"> • Number of women and men leading departments • Factory downtime experienced by male and female workers in a week • Employee performance indicators, disaggregated by sex • Number of women and men hired as casual, semi-permanent and permanent staff • Number of sexual harassment complaints filed and addressed
<p>Sales and value chains By branding or being certified as eco-friendly, socially equitable, and empowering women, agribusinesses can access premium markets and improve prices and profit margins. These indicators track the competitive edge achieved after implementation of CSA practices and gender-inclusive policies</p>	<ul style="list-style-type: none"> • Volumes sold • Number of women and men distributors and respective contributions to sales volumes • Additional revenue from premium certifications, percentage of which invested back into the value chain • Number of certifications or international standards compliance • Number of international buyers • Number of memberships in trade alliances, peer groups or networks
<p>Support functions Agribusinesses have the opportunity for gender inclusion across all supporting functions beyond board composition. With gender-inclusive strategies, policies and facilities, they can attract and retain quality talent. Evidence shows that gender diversity contributes to performance optimization and employee retention. These indicators demonstrate the company's commitment to gender equality.</p>	<ul style="list-style-type: none"> • Gender composition of staff, management, and board of directors • Number of women and men promoted internally • Number of new women and men hired in a year • Number of women and men who have resigned • Remuneration per hierarchical level, for men and women • Number of women and men participating in training opportunities

Source: Adapted from *Value for Women* (2018).

Roadmap for ecosystem enablers and NGOs

Ecosystem enablers such as CGIAR, research institutions and universities, and NGOs play important roles in engaging all actors to increase investment in the agricultural sector. They can support investors with their technical expertise in gender-inclusive CSA approaches.

Capacity Building

- Publish case studies of scalable CSA business models and package evidence-based research in an accessible way for investors, entrepreneurs, and extension service providers. This will highlight how value chain actors can build more resilient food systems.
- Develop methods and tools to prioritize and assess CSA business models based on the local socioeconomic context. This will ensure that CSA innovations enhance gender equality, and do not exacerbate existing gender-based inequalities. For example, CGIAR has developed a comprehensive training manual for capacity building in CSA and climate information services as part of the Accelerating the Impact of CGIAR Climate Research for Africa (AICCRA) project in Kenya (Mwongera et al., 2022). Through seven modules, the training enables CSA implementers in specific contexts to recognize gender-sensitive CSA value chains, focus on best-bet CSA and climate information service packages, and create a CSA action plan.
- Communicate on the benefits and long-term impacts of CSA through different channels and activities for members of the agricultural sector. This will create awareness of challenges and showcase the opportunities for impact and value creation.

Gender-responsive products and programs

- Develop and run incubator and

accelerator programs focused on women-led CSA businesses. This will stimulate innovation and put the spotlight on high-potential business models. For example, CGIAR has launched many such initiatives, including the [Gender in Agribusiness Investments in Africa \(GAI\) Boot Camp](#) launched by AWARD in 2017, the [AICCRA-Zambia Accelerator Grant](#), the [Agri-Tech4Morocco Innovation Challenge](#), and the Food Energy Water Nexus Challenge to be launched by AICCRA in 2023.

- Co-design with banks gender-responsive financial tools and products for the agricultural sector to mitigate the risks related to climate change and access the potential benefits of engaging with the women farmer customer base.
- Co-design gender-responsive data collection methodologies to help investors collect data and report on the impact achieved through CSA business models.

Partnerships

- Partner with local, regional and global organizations focused on women-led agri-businesses such as [Lady Agri](#), [The Rallying Cry](#), [ITC She Trades Initiative](#), [2X Challenge Climate Taskforce](#), and [InsuResillience Center of Excellence for Gender-Smart Solutions](#) to share technical expertise on gender-responsive CSA practices. This will facilitate the creation of a pipeline of women-led agribusinesses by increasing the number of scalable CSA business models ready for investment.
- Offer technical advisory services to investors for gender and climate assessments of value chains and investment analysis. Pre-investment expertise is crucial for developing investment-ready business models. Post-investment monitoring and evaluation will support long-term impact for women and the environment. For example, CGIAR has developed a framework to identify climate-smart food system

business models in Latin America (Simon et al., 2021). It works as an impact assessment tool for evaluating CSA performance of companies' potential impacts and additionality of investments regarding mitigation, adaptation and productivity through a gender lens.

- Accompany local governments in the design and implementation of gender-responsive CSA extension programs. This will enable smallholder farmers to be aware of the changes needed to become more resilient to climate change. Another partnership opportunity with governments is for policy support on non-discriminatory land rights. With secured land rights, women will be better able to provide collateral and obtain financing for their farming operations and agribusinesses.

Sex-disaggregated data analysis

- Collect and analyze sex-disaggregated data at the project, value chain, and program levels. This will help assess the status, vulnerabilities and constraints of women farmers. This information will also provide a better understanding and basis for project impact and future implementation.
- Share the data and the analysis, and make it accessible to all stakeholders, so they can make better decisions integrating gender dimensions.

Roadmap for governments

In light of the identified constraints, an enabling policy environment is a critical prerequisite to scale investments in women-led climate-smart businesses. Governments can send a strong signal to the private sector that they should engage in business ventures in the agricultural sector through climate-smart and gender-inclusive approaches. Empowering women can contribute to national development goals through improving home and family well-being as women spend a greater proportion of their income on household health,

nutrition and education (Twyman et al., 2017). Implementation of CSA can contribute to national climate adaptation goals by strengthening producers and agribusinesses' abilities to withstand meteorological, environmental, and economic shocks.

Build internal gender and CSA capability

- Hire female staff and create career paths for them within management and technical services. This is essential to create change from within the agricultural sector. Creating more employment opportunities internally will empower women; if their experience and technical expertise are valued, they can contribute to providing better services to women farmers.
- Train staff on gender issues and develop internal expertise on gender-responsive CSA so that gender and sustainability are routinely considered as part of program design, implementation, and monitoring and evaluation.
- Design research programs that address gender issues in food systems and support research institutions to increase hiring and advancement of women researchers.

Gender-responsive products and programs

- Create and enforce policies to secure land rights for women to have safe access to, and ownership of, land. This can be transformative for women and enable them to access financing with their land titles as collateral.
- Create gender-inclusive CSA extension programs to highlight the benefits of climate-smart agriculture techniques. Adapt the delivery of extension programs using gender-sensitive communication channels to ensure better inclusion of women farmers and agri-entrepreneurs.
- Create an enabling environment for

women and youth entrepreneurship through incentives, subsidies, and guarantee facilities. For example, the Malian government has set up the [Cellule de la Promotion de l'Entreprenariat Agricole](#) which provides initial financing for youth and women entrepreneurs who want to create mechanization service centers in rural areas. Half of the initial setup cost of USD 70,000 is extended as a subsidy to the entrepreneurs and the other half is financed through local partner financial institutions and backed with a guarantee from the [Fond the Garantie pour le Secteur Privé](#).

Partnerships

- Engage with multilateral development banks, global, and regional

development banks to fund innovative women-focused financial instruments to de-risk investment in the national agri-food sector. These products can take the form of guarantees, subsidies, technical assistance and grants, and index-insurance schemes.

- Design public private partnerships that create opportunities for women owned enterprises.

Sex-disaggregated data analysis

- Require sex-disaggregated reporting across all government services. This will create accountability and ensure women are seen and heard across the different interventions. The analysis of the collected data will help assess gender constraints and identify both challenges and opportunities.



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6. Conclusions

Climate change is becoming an existential crisis whose impacts are already obvious: more frequent and severe floods and droughts, rising temperatures, reduced water and food security which in turn is exacerbating conflict, and growing rates of hunger and malnutrition. Temperature rises will lead to productivity losses estimated conservatively at USD 6 trillion by 2050 (McKinsey Global Institute, 2020). Other GDP losses will stem from lost agricultural yields, lower capital productivity, water stress, and extreme weather events. We must take action urgently to mitigate GHG emissions and help communities to adapt successfully to climate change impacts.

Women constitute 50% of the population. We cannot rise to these challenges without engaging them fully and effectively: they are both the ones who are most vulnerable, but also they are a critical part of the solution. Women play significant roles across agricultural value chains, acting as producers, processors, distributors, and consumers. With their expertise, resourcefulness, and lived

experience, women are important determinants of, and contributors to, households' resilience to climate change (De Pinto et al., 2020).

Gender-smart investments to shift more capital towards women farmers and women agri-entrepreneurs is crucial for scaling CSA solutions. It will also contribute substantially to eradicating hunger (SDG1), achieving food and nutrition security (SDG2), achieving gender equality (SDG5), providing water and sanitation services to all (SDG6), and combat climate change and its impacts (SDG13). Indeed, we cannot achieve these goals without engaging women fully and equally.

This discussion paper provides guidelines to investors, ecosystem enablers, and governments for mainstreaming gender-smart investing to scale CSA business models. We hope this high-level roadmap motivates and inspires investments in gender-smart, climate-smart agricultural businesses.

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Appendix 1: Case Notes

<p>Jokalante Senegal Est. 2016</p> <p>GENDER CRITERIA: Female founder and CEO</p> <p>CSA- CIS: Climate Information Systems</p>	<p>Jokalante provides climate information services to 200,000 farmers in six Senegalese languages: through voice, SMS, WhatsApp, and community radios. Their technology platform allows for data collection and data analysis of user-profiles and adapts messages for better behavior change communication.</p> <p>Business model: Through partnerships with international donors, cooperatives, and agri-input suppliers, Jokalante delivers the climate advisory information to farmers' phones. These partners also sponsor community radio programs to alert farmers on climate shocks. Jokalante also partners with microfinance institutions in rural areas to facilitate farmer loan applications and assessment.</p>
<p>GIE-KUMASE CRP-CEMA Mali Est. 2019</p> <p>GENDER CRITERIA: Female founder and manager</p> <p>CSA-CIS: Rice Advice® developed by CGIAR's AfricaRice</p>	<p>GIE-KUMASE is a tractor service provider for rice producers in the Niono region. They also provide rice and sorghum milling, packaging, and selling services. They use information technology in all strategic aspects of their business: Hello Tractor for equipment dispatching, Rice Advice for farmer advisory and decision making, and FarmerHub for business and financial management. They are established in Malian "Red-zones" and created jobs for 15 young people who otherwise could become jihadists. They were able to obtain a loan from the Ministry of Agriculture to finance their first tractor. They also received technical assistance from the Syngenta Foundation.</p> <p>Business model: Service fees from tractor rental, milling, and packaging of rice and sorghum.</p>
<p>Safi Organics Kenya Est. 2015</p> <p>GENDER CRITERIA: Female Founder and COO</p> <p>CSA: Organic inputs</p>	<p>Safi Organics produces organic fertilizer using biomass at an affordable price. They contribute to a reduction of biomass waste, enabling 1.7 Ton of CO2 sequestration per hectare per season. They provide an alternative source of revenue to women farmers through biomass collection activities.</p> <p>Business model: Collection of rice husk and market waste for biomass production, processing the biomass through lean oxygen torrefaction in decentralized production centers, distributing the organic fertilizer through agro-dealers for last-mile delivery.</p>
<p>COMACO Zambia Est. 1999</p> <p>GENDER CRITERIA: +50% Women in value chain activities</p> <p>CSA: Conservation agriculture</p>	<p>COMACO federates 86 cooperatives with a total membership of 250,000 farmers. They provide inputs, marketing, logistics support to their members. They represent a sustainable alternative revenue sources for local communities that previously resorted to poaching due to lack of economic opportunity. COMACO also provides capacity building for the farmers in financial literacy, production methods, and food safety. They have designed specific product lines to empower women farmers.</p> <p>Business model: Sales of transformed products purchased from the cooperatives under the It's Wild brand for a premium price. Revenues from carbon credits through the cooperative's agroforestry activities.</p>

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