Technical Guide

A Self-Guided Handbook on the Use of the GenderUp Method for Responsible Scaling of Innovation

Kristen Becker, Erin McGuire, Ojongetakah Enokenwa Baa, Millicent Lodenyi Liani, and Karen Nortje

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We extend our sincere appreciation to our partners, stakeholders, and collaborators whose expertise, insights, and commitment have contributed significantly to shaping this work. Their contributions have been instrumental in advancing CGIAR's ambition to scale proven innovations across food, land, and water systems, fostering impact that is inclusive, sustainable, and transformative.

We also recognize the continued support and collaboration of national and regional partners, whose engagement ensures that the solutions developed are responsive to local needs, strengthen innovation systems, and contribute to building more resilient agrifood systems.

Finally, our sincere appreciation goes to the following individuals whose authorship in previous versions on GenderUp guided the design of this publication:

2020-2022: Initial version of GenderUp developed and tested by Cees Leeuwis (Wageningen University), Anne Rietveld (Alliance Bioversity-CIAT), Erin McGuire (UC Davis), Bela Teeken (IITA) and Vanya Slavchevska (Alliance Bioversity-CIAT)

2022-2024: Further development, testing and scaling of GenderUp by Erin McGuire (UC Davis), Kristen Becker (UC Davis) and Katheryn Gregerson (UC Davis)

About CGIAR Scaling for Impact (S4I) Program

Scaling for Impact (S4I) is a CGIAR program (2025–2030) that tests, refines, and scales innovations in food, land, and water systems. It works to align those innovations with stakeholder needs to achieve transformative impact.

Website: https://www.cgiar.org/cgiar-research-porfolio-2025-2030/scaling-for-impact/

About CGIAR

CGIAR is a global research partnership for a food secure future.
Visit https://www.cgiar.org/research/cgiar-portfolio to learn more about the initiatives in the CGIAR research portfolio.

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Front cover photo: GenderUp training participants in Nepal, hosted by Feed the Future Innovation Lab (*photo:* Erin McGuire)
Back cover photo: Woman with orange flesh potato products (*photo:* International Potato Center [CIP])

Contents

Acronyms

AoW - Area of Work

CoA - Cluster of Activities

RBET - Reach, Benefit, Empower, Tranform

RRI - Responsible Research and Innovation

RTB - CGIAR Research Programme on Roots Tubers and Bananas

NWO - Dutch Research Council

IITA - International Institute of Tropical Agriculture

TAAT - Technologies for African Agricultural Transformation

GIZ - Deutsche Gesellschaft für Internationale Zusammenarbeit

FAO - Food and Agriculture Organization

NGO - Non-governmental Organization

IRRI - International Rice Research Institute

PIDA - Pastoralist Initiative Development Aid

MDII - Multi-Dimensional Inclusivity Index

WAPOR - Multi-Dimensional Inclusivity IndexWorld Association for Public Opinion Research

CA - Conservation Agriculture

HCD - Human-Centered Design

Using this Handbook

This handbook is designed as a self-guided resource for teams applying the GenderUp method to design and scale inclusive innovations within the CGIAR Scaling for Impact Science Program. While it can be completed independently, it is typically most effective when one team member acts as the lead, guiding colleagues through the learning modules, activities, surveys, and worksheets. Before beginning, the lead should take time to familiarize themselves with the structure of the manual and materials.

If your team is working in person, feel free to get creative - use whiteboards or flipcharts to complete the worksheets and visualize your team's ideas together. If you are working with a trained facilitator, they will guide you through the process using online versions of the tool, including access to a virtual collaboration space for co-developing your scaling strategy. Facilitators can also provide access to digital surveys and summary reports.

To connect with or become a trained GenderUp facilitator, visit responsibleinnovations.org/contact-us-genderup. Please note that facilitator costs and fees will vary.

Because GenderUp explores complex social and institutional dimensions of scaling, it is important to allocate sufficient time for meaningful reflection and discussion. A typical GenderUp workshop can be completed in one full day (eight hours) or divided into shorter sessions spread across multiple days, depending on your team's availability and needs.

TEAM

Innovation teams should be composed of diverse viewpoints and disciplines, including both technical and social experts. We encourage including team members who have various experience with developing, testing, and/or using the innovation. Typically, innovation teams range from three to eight team members.

TIME

This process will take 8-10 hours and can be done in one day, or split over several work sessions.

FACILITATOR

A team leader who has familiarized themselves with the learnings and process within this handbook (or a trained GenderUp facilitator)

MINDSET

All participants should have a willingness to reflect thoughtfully about their innovation and scaling strategies.

Purpose

The **purpose of this handbook** is to provide a user-friendly manual for use across disciplines and scaling contexts within the CGIAR.

GenderUp is one tool within the CGIAR Scaling for Impact Program that can support teams in embedding responsible research and innovation into their efforts. Specifically, the handbook is designed to support CGIAR Scaling for Impact Program Area of Work 2 (AoW2) teams working on pathways to scale in agrifood systems to enhance their capacity for responsible and inclusive scaling.

Why Responsible Innovation and Research?

- The Sustainable Development Goals require that we make progress on social goals.
- Agriculture and Research for Development tools, including scaling tools, are traditionally gender-blind.
- Innovation use and impact are different within different communities.
- To benefit marginalized populations, we must consider social effects.

While many approaches to scaling innovations focus on removing bottlenecks that limit adoption, GenderUp goes further by identifying and eliminating barriers that prevent marginalized social groups from benefiting equally as described in Figure 1.

AoW2 designs pathways to scale in agrifood systems using a process that: i) Refines, adapts, and amplifies ii) Network and diagnoses iii) co-design iv) evaluate across production systems, value chains and markets, food environments, and climate and environment. Responsible scaling of innovations seeks to facilitate improvements in policies, market systems, business, and institutional capacity while overcoming normative barriers to scaling. ***The Enabling Environment Lab (AoW3)***, where this GenderUp Handbook is being designed, seeks to provide tools that create an enabling environment for scaling of AoW2 innovations.

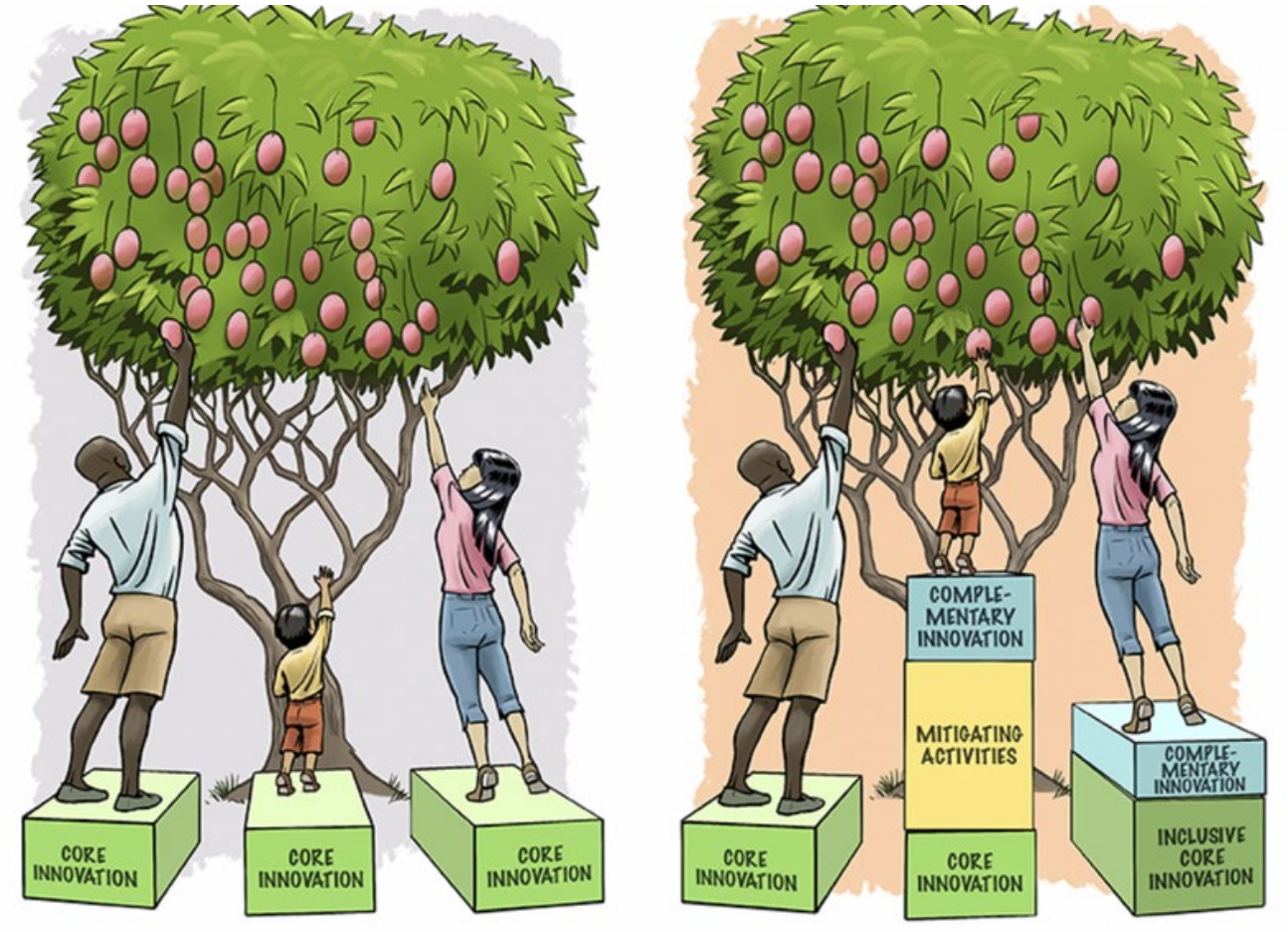


Figure 1. GenderUp figure showing differences traditional scaling and responsible scaling.
Source: McGuire, E., Leeuwis, C., Rietveld, A. M., & Teeken, B. (2024).

AoW2: Pathways to Scale in Agrifood Systems

The GenderUp process aligns with the ambitions and outcomes of AoW 2: Pathways to Scale in Agrifood Systems by embedding responsible, inclusive, and evidence-based practices throughout the scaling process. It contributes to all three AoW 2 impact pathways by strengthening innovation systems and equipping institutions with diagnostic tools for socially responsible decision-making.

This handbook can specifically help address the following within each Cluster of Activities (CoA):

Within **CoA 2.1** (*Network and Diagnose*), the handbook serves as a participatory tool that helps multistakeholder scaling hubs identify power dynamics, marginalized user groups, and social barriers that affect innovation adoption. This diagnostic function enhances the ability of regional partners to map equity gaps and define context-specific levers for change.

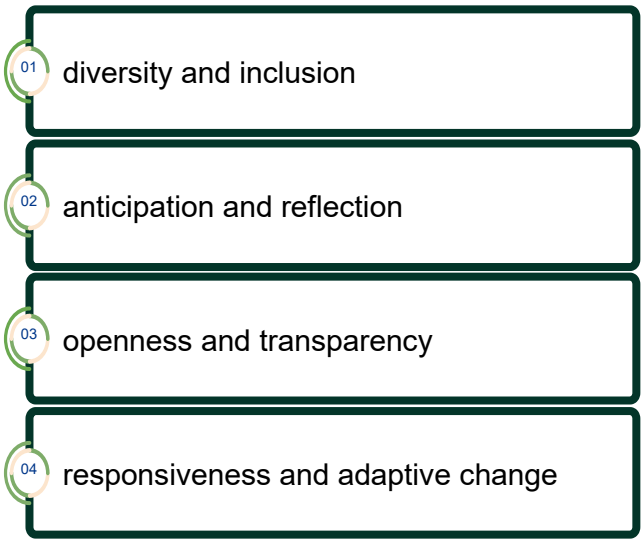
For **CoA 2.2** (*Pathway Co-Design*), GenderUp provides a structured process for inclusive co-design, ensuring that gender and social differentiation are systematically integrated into innovation bundles and scaling pathways. It enhances stakeholder collaboration by encouraging critical reflection and the co-creation of mitigation strategies that reduce exclusion and unintended harm, thereby reinforcing responsible scaling practices.

In **CoA 2.3** (*Pathway Evaluation*), GenderUp complements quantitative and qualitative assessment frameworks by offering a reflective and participatory mechanism to evaluate the social impacts of scaling processes. It enables facilitators and innovation teams to capture nuanced feedback from diverse stakeholders, ensuring continuous learning and adaptation of scaling strategies in real time.

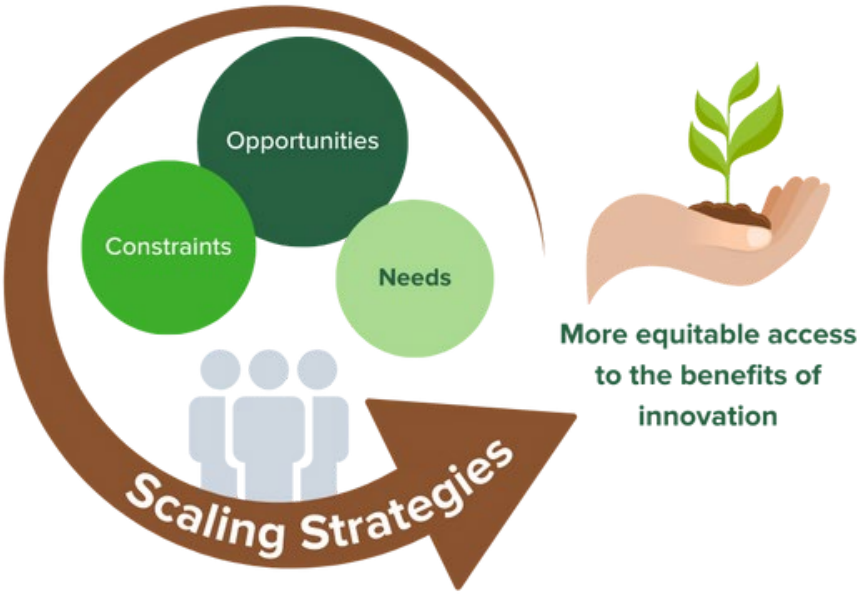
Finally, in **CoA 2.4** (*Refine, Adapt, and Amplify*), the handbook supports adaptive management by documenting and synthesizing lessons learned from previous GenderUp workshops and surveys. Through its iterative and self-guided format, it helps partners refine their innovations and scaling approaches to be more equitable, sustainable, and socially embedded.

Across these activities, the GenderUp Handbook operationalizes Responsible Research and Innovation
(RRI), a framework that ensures new technologies, practices, and scientific advances are developed ethically, inclusively, and with societal benefit in mind. Rather than treating innovation as a purely technical process, RRI emphasizes anticipating potential impacts, both positive and negative, engaging stakeholders early, and responding to their needs, values, and concerns. It promotes transparency, equity, and accountability across the entire innovation pathway, from idea generation through scaling and long-term use. By transforming gender and inclusion principles into actionable practices that strengthen scaling systems, GenderUp aligns with RRI and contributes to CGIAR's 2030 Outcomes, particularly by ensuring that scaling efforts not only reach more people but do so equitably, empowering marginalized groups, strengthening institutional learning, and fostering inclusive agrifood system transformation.

Pillars of Responsible Research and Innovation



GenderUp Background



Scaling strategies as embedded within the GenderUp Methods.
Source: GenderUp developers

Recognizing a gap in focus on gender and other relevant diversity in scaling support tools, in 2020 the development of GenderUp was funded by the CGIAR Research Programme on Roots Tubers and Bananas (RTB) and also benefited from the Senior Expert Programme funded by the Dutch Research Council (NWO). Developers include Cees Leeuwis (Wageningen University), Anne Rietveld (The Alliance of Bioversity International and CIAT), Erin Mcguire (Responsible Innovations), Bela Teeken (IITA) and Vanya Slavchevska (The Alliance of Bioversity International and CIAT). The former Feed the Future Innovation Lab for Horticulture further developed and scaled GenderUp under the leadership of Erin McGuire, Kristen Becker, and Katheryn Gregerson.

Read more about the methodology here: *Anticipating social differentiation and unintended consequences in scaling initiatives using GenderUp, a method to support responsible scaling* - *https://doi.org/10.1016/j.agsy.2024.103866*

GenderUp is now housed under Responsible Innovations who took over leadership in advancing the tool in April 2025.https://responsibleinnovations.org/genderup/

Stages of GenderUp

GenderUp is designed to support project and research teams in innovating and scaling agricultural innovations in a socially responsible way. It is a discussion-based tool that guides innovation teams to: (i) identify inclusive pathways for more successful and inclusive innovating of agricultural innovations and (ii) improve their scaling strategy by anticipating unintended negative consequences for different groups in society. Through evidenced-based, structured training, researchers and innovators can learn how to scale their technologies and practices in a responsible manner.

Through a series of six stages, this Guidebook will walk innovation teams through discussions, learning activities, and practical integration to develop a socially responsible innovation and scaling strategy. Each stage encompasses discussion questions that were informed from extensive literature reviews on the relation between gender, social differentiation and agricultural innovation, as well as methods in which to anticipate different outcomes (See Figure 2). The questions posed invite reflection on the team's initial scaling strategy, how gender and other dimensions of social differentiation (i.e. age, wealth, education etc.) are likely to shape the distribution of benefits and risks associated with the (non)use of the innovation, what user groups may require special consideration for accessing benefits of the innovations, and finally how to re-design the scaling strategy for different users to prevent or mitigate negative consequences of scaling.

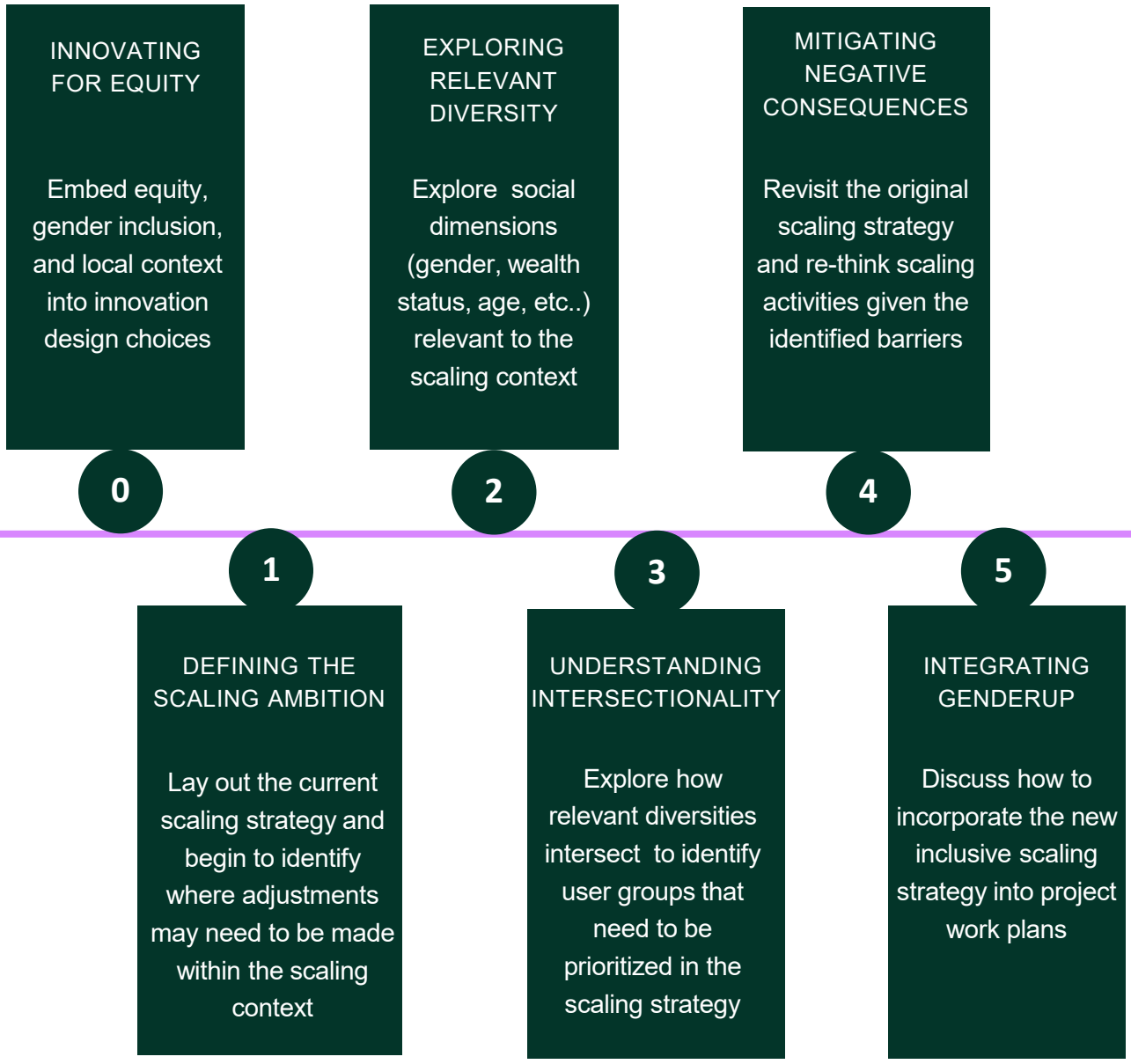


Figure 2. Showing the five stages of GenderUp, and the activities to be carried out in each stage.
Source: Responsible Innovations

The Impact of GenderUp

Since its launch in 2021, GenderUp has trained over 175 facilitators across a diverse network - including CGIAR, FAO, various universities, World Bank, GIZ, and a multitude of local NGO's (see Figure 3 and Figure 4). Facilitators from these trainings have in turn guided innovation teams across a broad span of countries and diverse innovations, including Rwanda, Malawi, Dominican Republic, Costa Rica, Guatemala, Peru, and Zimbabwe. Post-training analysis and surveys show that teams systematically considered users previously overlooked in scaling efforts and designed complementary measures to mitigate risks. For example, a team scaling a DryCard dryness indicator in Rwanda identified low-income women as an at-risk group and responded by relocating trainings, providing per diem, offering sessions in local languages, and engaging men in training to support women's uptake. By embedding considerations of gender and broader social diversity into innovation design and scaling, GenderUp equips organizations to deliver innovations responsibly.

GenderUp has influenced how researchers, practitioners, and technical specialists think about inclusion, power, and equity in their work. In a recent landscape analysis, many participants described the tool as a turning point that expanded their understanding of gender beyond compliance or checklists, to something integral to innovation and scaling. As one researcher reflected, "*GenderUp has changed my thinking in so many ways - I never envisioned championing equality and inclusion in my biophysical research.*" Others highlighted how it provided structure for reflection and deeper analysis: "It helped me understand how intersectionality can be measured through layers. This disaggregation between social differences is not always easy in the field, but this tool provides a path and direction." The process helped individuals ask better questions about agency and participation to "*not just who benefits, but who decides, who is heard, and who leads.*" Many began applying this lens across disciplines, integrating gender considerations into technical research, project design, and leadership practices.

At the organizational level, GenderUp has catalyzed cultural and structural transformations. Within one NGO in Ethiopia, for example, GenderUp's participatory discussions revealed how women's perspectives had been largely excluded from local peace processes, resulting in community leaders restructuring peace committees to increase representation, and further "inspired changes in team dynamics—encouraging more inclusive participation during meetings and decision-making." Similarly, in East and Southern Africa, GenderUp workshops reshaped collaboration within the Ukama Ustawi Initiative. One participant noted, "*I realized I wasn't just designing a trial; I was designing a social process.*" The sessions prompted teams to integrate gender earlier in project design.

Across contexts, GenderUp has sparked a culture of reflexivity, empathy, and shared accountability. It has helped teams see that impact is not only measured through yields or adoption rates, but through relationships, decision-making processes, and the equitable distribution of power.

For more about its impact read here

Figure 3. Showing GenderUp Facilitator training (left) 2024 IRRI Los Banos, Philippines, and GenderUp workshops (top and right) 2024 IITA Lusaka, Zambia. *photo:* Erin McGuire

While GenderUp was originally designed as a course at the University of California (UC Davis) Horticulture Innovation Lab to support responsible and inclusive scaling of agricultural innovations, practitioners across regions and disciplines have creatively adapted its principles, framework, and participatory methods to meet new challenges. From digital agriculture and land restoration to peacebuilding and higher education, GenderUp has become a flexible, reflexive approach that bridges technical design with social inclusion.

Across multiple projects, teams have combined GenderUp with other tools and methods to strengthen innovation design and foresight. Under the FAO WaPOR Project implemented by IWMI, GenderUp was integrated with their Multi-Dimensional Inclusivity Index (MDII) to guide digital tool development for agricultural water management across eight countries. Stages 1–4 helped innovation teams anticipate unintended consequences and embed inclusive scaling strategies from the start. Under the GCBC CROSSROADS Project implemented by IWMI in Ethiopia, GenderUp provided a lens for exploring how land rehabilitation using under-utilized species could become a more inclusive process for women and marginalized groups.

At the Pastoralist Initiative Development Aid (PIDA), GenderUp evolved into a broader framework for gender mainstreaming across peacebuilding and livelihood projects. It was used to guide participatory project design, inform gender-sensitive monitoring systems, and strengthen internal capacity through reflection-based staff training. Simplified versions of GenderUp were translated into local languages for community peace committees and youth groups—ensuring that inclusivity was not just a policy, but a practice.

GenderUp's influence has also extended into education and program development. One practitioner embedded selected activities into the Farmer-to-Farmer Program across Southeast Asia, helping country teams design more inclusive extension strategies in the Philippines, Cambodia, and Thailand. The same materials were used to enrich an undergraduate course on international extension systems, introducing students to real-world applications of gender and power analysis. In other cases, programs embedded GenderUp into early co-design processes, tailoring it with local user profiles and simplifying workshop steps for mixed stakeholder groups. This hybrid approach strengthened collaboration between technical and social scientists and helped translate reflection into concrete action for equitable impact.

Across all these adaptations, it is clear that GenderUp is not confined to one sector, format, or outcome. It is a thinking framework and dialogue process bridging social and technical systems and fostering shared accountability for inclusive outcomes.

Figure 4. GenderUp Facilitator training 2024 Feed the Future Innovation Lab for Horticulture Antigua, Guatemala. *photo:* Erin McGuire

GenderUp Across CGIAR

GenderUp has been increasingly used across the CGIAR as a social inclusion scaling and learning tool - with 40% of all trained facilitators being associated with the CGIAR.

By building on the work of CGIAR Regional Integrated Initiatives (2022-2024), which transitioned into CGIAR Scaling for Impact Science Program (2025-2030), the Ukama Ustawi Initiative, for example, applied GenderUp across two countries, Zambia and Zimbabwe, and multiple innovation packages. In Zimbabwe, the Ukama Ustawi Initiative used GenderUp to support stakeholders scaling mechanized Conservation Agriculture innovations. Participants, including government, FAO, USAID, and CGIAR representatives, identified at-risk groups such as young and elderly farmers, people with disabilities, and those in remote areas (see Table 1). Discussions revealed that scaling mechanized CA could increase labor burdens for the elderly and potentially shift social cohesion, reducing mutual labor exchange among farmers. GenderUp guided participants to consider not just technical adoption but also broader social impacts, demonstrating that scaling innovations influences both users and non-users. This example shows the flexibility of the methodology to complement other scaling tools and expand teams' understanding of inclusive, socially aware scaling.

In Zambia four innovations - conservation agriculture, improved cowpea seeds, aquaculture, and the Go Digital Farm platform - engaging teams of researchers, development partners, farmer representatives, and private sector actors. Participants identified at-risk groups including young women, low-income farmers, and people with disabilities. Mitigation strategies included providing childcare and transport support, financial literacy training, two-wheel tractor services, complementary innovations like cold storage and contract farming, and building partnerships with microfinance institutions, cooperatives, seed companies, extension services, and community leadership. This case illustrates how GenderUp can reframe scaling as a socially reflective process, helping teams ensure equitable access and benefits while integrating inclusion into technical scaling strategies.

In a different context, the Technologies for African Agricultural Transformation (TAAT)-Clearinghouse applied GenderUp principles through the design of the "Inclusion" section of the program's e-catalogs. This section provides adopters of technologies and innovations with critical information to plan projects or programs in ways that account for social differences and potential barriers. Examples of applying GenderUp on AoW2 innovations are explored in the subsequent pages for illustrations on the different GenderUp steps.

Table 1. Showing case studies of GenderUp innovation workshops with mitigation strategies

Case Study	Innovation(s)	At-Risk Groups Identified	Mitigation Strategies & Adjustments
Zimbabwe	Mechanized Conservation Agriculture (CA)	• Young and elderly farmers • People with disabilities • Farmers in remote areas	• Anticipated labor burdens for elderly • Reflected on potential social cohesion impacts • Considered broader community-level effects beyond direct users
Zambia	Multiple innovations: conservation agriculture, improved cowpea seeds, aquaculture, Go Digital Farm platform	• Young women • Low-income farmers • People with disabilities	• Childcare and transport support for women and disabled participants • Financial literacy training • Complementary innovations (cold storage, contract farming, integrated aquaculture) • Partnerships with microfinance institutions, cooperatives, seed companies, extension services

Applying GenderUp Across AoW2

The following thematic innovation examples - covering areas such as irrigation, mechanization, nutrition, seed systems, digital tools, livestock, postharvest technologies, and aquatic foods - are designed to illustrate how GenderUp can be applied across diverse CGIAR innovation and scaling spaces. Each one-page example follows the same structure: (1) a brief description of typical innovations in that cluster, (2) why gender and social inclusion matter uniquely for that type of technology, (3) how GenderUp can support in identifying risks, opportunities, and needed complementary innovations, and (4) a short set of guiding questions that teams can use in their own design and scaling process. These examples can help guide facilitators as they work through the different stages (stage 0-5).

Sustainable Farming

IRRIGATION

EXAMPLES OF INNOVATIONS

- Solar-powered irrigation pumps
- Drip and sprinkler systems
- Water storage tanks and gravity-fed systems
- Smart irrigation scheduling tools

WHY GENDER + SOCIAL INCLUSION MATTER

Access to land, water rights, decision-making power, and finance strongly influence who benefits from irrigation. Women and marginalized groups often lack the resources, mobility, or tenure security necessary to adopt irrigation technologies, even when the systems are designed to be “user-friendly.” Irrigation can also increase labor demands or shift control of productive assets across a community.

HOW GENDERUP CAN SUPPORT IRRIGATION PROJECTS

GenderUp helps teams uncover:

- Structural barriers (land rights, water governance, norms about women managing water technologies)
- Differences in who controls irrigated land and who decides on water use
- Unintended burdens such as increased weeding or pumping labor
- Necessary complementary innovations (women’s water committees, finance models, shared-access systems)

ILLUSTRATIVE GUIDING QUESTIONS

- Who controls irrigated plots and water access?
- How do gender norms shape decisions about water allocation?
- Will the technology increase labor for women or youth?
- Which financial or land constraints limit access for certain user groups?

MECHANIZATION

EXAMPLES OF INNOVATIONS

- Two-wheel and four-wheel tractors
- Planters, weeders, shellers, threshers
- Harvesting tools
- Mechanized processing units

WHY GENDER + SOCIAL INCLUSION MATTER

Mechanization can reduce drudgery but may also:

- Displace labor
- Shift control of assets to men
- Exclude women or youth due to norms around machinery use
- Require financial resources rural households cannot access

HOW GENDERUP CAN SUPPORT MECHANIZATION PROJECTS

GenderUp helps identify:

- Who currently performs labor-intensive tasks, and who benefits when machines are introduced
- Whether norms restrict women or youth from using, owning, or repairing machinery
- Gaps in access to finance, providers, or training
- Risks of reinforcing inequality by consolidating machinery in elite groups
- Opportunities for inclusive business models (e.g., women-led service providers)

ILLUSTRATIVE GUIDING QUESTIONS

- Whose labor is being replaced or reduced?
- Are women allowed or expected to operate machinery?
- Who can access credit, repair services, and training?

Applying GenderUp Across AoW2

Sustainable Farming

BREEDING

EXAMPLES OF INNOVATIONS

- Improved crop varieties
- Community seed banks
- Quality seed production technologies
- Digital seed advisory platforms

WHY GENDER + SOCIAL INCLUSION MATTER

Women often manage seed selection, storage, and exchange—yet formal systems frequently exclude them. Social norms, land rights, or limited decision-making power affect access to improved seed and influence which traits matter most to different user groups.

HOW GENDERUP CAN SUPPORT BREEDING WORK

GenderUp helps teams surface:

- Differences in seed preferences by gender, age, or livelihood
- Constraints in accessing certified seed, especially among poorer households
- Norms affecting seed production, control, and marketing
- Risks of undermining women's traditional seed roles
- Necessary adaptations (e.g., decentralized seed distribution, participatory variety selection)

ILLUSTRATIVE GUIDING QUESTIONS

- Whose traits and preferences are prioritized?
- Who controls seed decisions and purchases?
- How does the innovation affect traditional seed practices?

DIGITIZATION

EXAMPLES OF INNOVATIONS

- Digital advisory systems
- Mobile apps for farm management or marketing
- Satellite-based monitoring tools

WHY GENDER + SOCIAL INCLUSION MATTER

Digital tools can widen inequalities when:

- Women or poorer farmers lack smartphones, connectivity, or digital literacy
- Advisory content is not tailored to diverse user needs
- Labor demands shift without considering who performs related tasks

HOW GENDERUP CAN SUPPORT DIGITAL INNOVATIONS

GenderUp helps identify:

- Who has the knowledge, skills, and hardware needed to use digital tools
- Whether advisory content reflects women's and marginalized users' constraints
- Unintended exclusion from data-driven decision-making
- Necessary complementary innovations (digital literacy training, shared devices, local interpreters)

ILLUSTRATIVE GUIDING QUESTIONS

- Who has access to the devices and data required?
- Are messages usable for low-literacy or remote users?
- Could data-driven recommendations increase labor for certain groups?

Applying GenderUp Across AoW2

Food Frontiers and Security

POSTHARVEST

EXAMPLES OF INNOVATIONS

- Cold storage and cooling systems
- Improved drying or processing technologies
- Hermetic storage
- Transport and aggregation technologies

WHY GENDER + SOCIAL INCLUSION MATTER

Women frequently handle postharvest tasks - sorting, drying, storing, processing - which are often unpaid and time-consuming. Innovations can either reduce drudgery or increase workload, depending on design and access. Market access also varies by gender and social group.

HOW GENDERUP CAN SUPPORT POSTHARVEST PROJECTS

GenderUp helps teams see:

- Who performs postharvest labor and how innovations change this burden
- Who controls sales and income from processed products
- Barriers such as mobility norms, access to cooling hubs, or safety concerns
- What complementary innovations are needed (e.g., transport services, shared facilities)

ILLUSTRATIVE GUIDING QUESTIONS

- Who benefits from reduced losses or improved quality?
- Will the technology shift labor to certain household members?
- Who can physically access storage or processing centers?

NUTRITION

EXAMPLES OF INNOVATIONS

- Biofortified crops
- Nutrition-sensitive agriculture packages
- Behavior change communication tools
- Household food processing technologies

WHY GENDER + SOCIAL INCLUSION MATTER

In many contexts, women are responsible for food preparation and child nutrition but may lack decision-making power over food purchases, crop choices, or income use. Youth, elders, and marginalized groups may face additional dietary constraints or food insecurity.

HOW GENDERUP CAN SUPPORT NUTRITION PROGRAMS

GenderUp helps identify:

- Who controls food-related decisions and who prepares meals
- Whether nutrition messages reflect real constraints (time, fuel, access to foods)
- Risks of adding labor burdens to women
- How to design culturally meaningful behavior-change strategies
- Required complementary innovations (fuel-efficient stoves, income control, childcare support)

ILLUSTRATIVE GUIDING QUESTIONS

- Who decides what foods are grown, bought, or consumed?
- How will this change daily labor demands?
- Are nutrition messages accessible and realistic for all groups?

Applying GenderUp Across AoW2

Sustainable Animal and Aquatic Foods

LIVESTOCK

EXAMPLES OF INNOVATIONS

- Improved breeds (goats, poultry, cattle)
- Animal health technologies
- Fodder and feed innovations
- Livestock housing and welfare technologies
- Digital animal health tools

WHY GENDER + SOCIAL INCLUSION MATTER

Livestock roles are highly gendered: women often manage small stock and daily tasks while men frequently control large animals, as well as marketing and income. Marginalized or landless households may rely on livestock but have limited access to veterinary services or quality feed.

HOW GENDERUP CAN SUPPORT LIVESTOCK PROJECTS

GenderUp helps teams detect:

- Who owns different species and who controls income
- Labor shifts that affect women, youth, or elders
- Barriers to accessing veterinary services, training, or feed
- Risks of asset-grabbing when animals become more profitable

ILLUSTRATIVE GUIDING QUESTIONS

- Who performs daily livestock care?
- Who attends veterinary training or receives extension advice?
- Will the innovation potentially shift ownership of animals?

AQUACULTURE

EXAMPLES OF INNOVATIONS

- Improved small-scale aquaculture production systems
- Low-cost hatchery and fingerling technologies
- Sustainable feed
- Postharvest handling and cold chain for fish
- Community-based fisheries co-management tools

WHY GENDER + SOCIAL INCLUSION MATTER

Small-scale aquatic food systems are deeply shaped by gender norms, livelihood roles, and access to natural resources. Men often control fishing or pond ownership, affecting who adopts production-focused innovations. Ethnic minorities and Indigenous communities often rely heavily on aquatic foods but may be excluded from resource governance or licensing.

HOW GENDERUP CAN SUPPORT AQUATIC FOOD SYSTEMS

GenderUp helps teams explore:

- Who controls access to water bodies, ponds, gear, or fishing rights, and which groups are excluded
- Differences in risks, such as safety for women fish processors or weather-related risks for small vessels
- Labor dynamics, including shifts in feeding, pond preparation, harvesting, drying, and smoking

ILLUSTRATIVE GUIDING QUESTIONS

- Who controls water access, pond ownership, fishing licenses, and/or gear?
- Are women and marginalized groups able to access feed, cold storage, and extension services?
- Could improved profitability shift ownership or control away from disadvantaged groups?

0

STAGE 0

Objectives

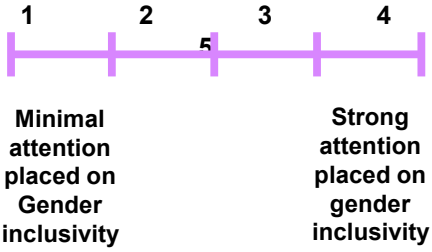
01 Your team will understand the concept of gender and why it is important in innovation and scaling

02 Your team will build a shared understanding of users' diverse needs and gender dynamics that shape innovation adoption across different contexts while exploring barriers to an enabling environment

Pre-Survey

Complete this survey individually to reflect on and assess your previous experience and knowledge of scaling innovations. Adjust the questions and answers as needed to suit your context.

1.Please assess the level of attention currently placed on gender inclusivity in your project.



2. Is your project team currently collecting gender-disaggregated data?

a. Yes
b. No
c. I'm not sure

3. How familiar are you with scaling innovations?

a. Not familiar at all
b. Not very familiar
c. Familiar
d. Very familiar

4. How familiar are you with issues concerning gender and scaling innovations?

a. Not familiar at all
b. Not very familiar
c. Familiar
d. Very familiar

5. For your innovation, how relevant are gender and socially marginalized groups?

a. Not relevant
b. Not very relevant
c. Relevant
d. Very relevant

6. Are you familiar are you with the idea of "complementary innovations" (innovations that enable the core innovation to have impact at scale)?

a. Yes
b. No

7. Which socially marginalized groups do you believe are restricted from accessing and/or utilizing your innovation in some way? Mark all that apply.

o Women
o Low income groups
o Groups lacking primary/secondary education
o Ethnic minority groups
o Single heads of households
o Religious minority groups
o Youth/Elderly
o Migratory groups
o Remote/hard to reach groups
o Groups with disabilities

8. How much of a priority do you place on scaling up your innovation?

a. No priority
b. Minimal priority
c. Some priority
d. A lot of priority
e. It is my top priority

9. On which geographical scale do you want to have an impact when scaling your innovation?

a. Locally (village-level)
b. Regionally (district-level)
c. Nationally (country-level)
d. International

10. What do you hope to gain from using GenderUp?

Innovating for Equity

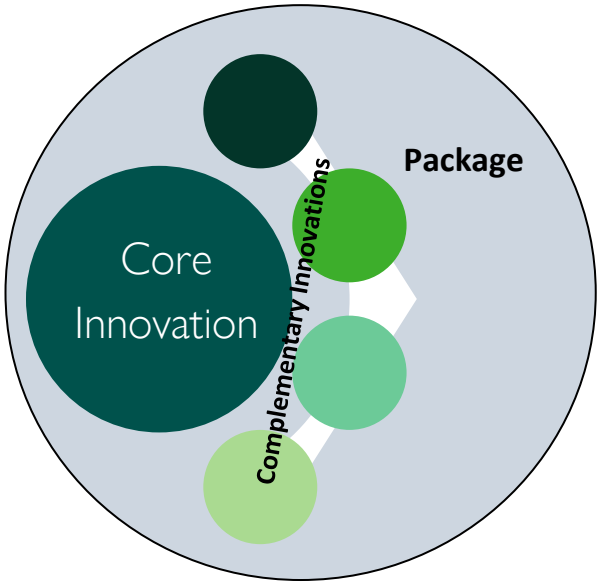
An Innovation is a novel technology, practice, service, model, or institutional arrangement that delivers value in society. A Core Innovation is at the heart of an initiative or intervention and its use is expected to contribute to impact at scale. A Complementary Innovation is any supplemental modifications or innovations needed to create enabling conditions around adopting and benefiting from the core innovation. This might include other new or existing technologies, information campaigns, policies, or financing mechanisms, for example. Together, they create an Innovation Package that can lead to transformative change.

Innovation Packages are context, outcome, and user-group specific.

A functioning Innovation Package is thus complex, and will contain social and biophysical dimensions. To effectively evaluate and capture these dimensions, your innovation team must have a diversity in expertise and backgrounds.

These concepts will be discussed in further depth in Stage 4. For more information and further learning, enroll in the free "Innovation and Scaling: An Introductory Online Course" presented by the CGIAR:

https://innovationandscaling.thinkific.com/courses/innovation-and-scaling



Activity 1: Team Expertise

Goal: To assess the balance of expertise and perspectives in your team and identify who may be missing from innovation design or scaling discussions.

1. Individual Reflection - Each person writes brief answers to:
   - What is your background (social or biophysical)?
   - What is your role on the team?
   - What 2–3 words describe your areas of expertise?
   - For researchers: What methods do you use (qualitative, quantitative, or mixed)?

2. Group Mapping - On a whiteboard, virtual board, or virtual word cloud generator, list everyone's backgrounds and methods. As a group, take note of where expertise clusters (e.g., many technical roles, few social scientists).

3. Discussion - Use these prompts to guide a short dialogue:
   - Is there an imbalance in expertise or perspective within our team?
   - How might our disciplines shape our assumptions and decisions?
   - Who has been left out of scaling or design discussions, and how can we bring them in next time?

Gender in Agricultural Systems

Globally, women make up approximately 43% of the agricultural workforce, with the percentage even higher in many developing regions. Agriculture remains the most important source of employment for women in rural areas, where they contribute in multiple capacities—as farmers, entrepreneurs, postharvest processors, traders, and contributing family workers. Despite their central roles, women's contributions often go unrecognized or undervalued in agricultural development and innovation processes. Understanding gender is essential for designing equitable food systems.

Gender refers to how societies socially construct the roles, responsibilities, and behaviors expected of men and women within a community. These expectations are not fixed; they vary across cultures, regions, and contexts, shaping access to resources, opportunities, and decision-making power.

Power within food systems is both invisible and complex. It influences who speaks, who decides, and who benefits. Women are frequently marginalized in terms of power, voice, and autonomy, which limits their ability to adopt, adapt, and scale innovations (see Figure 5).

When innovation and scaling efforts ignore gender dynamics they risk reinforcing existing inequalities rather than transforming them. Recognizing and addressing these power imbalances is key to building inclusive and resilient agricultural systems.

Gender Influences:

Individual power

↓

Individual opportunities and restrictions

↓

How men and women communicate and interact

For a deeper dive into assessing how power dynamics may influence impacts, see the appendix for an Optional Activity: Practice Identifying Unintended Consequences

Power With
building collective strength based on mutual support, solidarity and collaboration

Power To (autonomy)
potential of every person to make their own decisions

Example from Tanzania:

Sweet potato storage structure scaled without considering gender impact.

↓

Women increase reliance on men for building and maintaining structures.

↓

Women lose autonomy and control of their operations and incomes.

↓

Existing social inequalities are reinforced by the "improved" technology.

Figure 5. Showing example from Tanzania on how to assess levels of power in the innovation design process.
Source: Author's creation

Constraints for Women to Adopt or Benefit from Innovation

Women often face systemic barriers that limit their ability to adopt and benefit from agricultural innovations. These barriers include unequal access to resources such as land, credit, inputs, and training, as well as limited decision-making power within households and communities. Social norms may restrict women's mobility, participation in extension programs, or ownership of assets—factors that directly affect their capacity to engage with new technologies as described in Figure 6.

Innovations are frequently designed without women's perspectives or priorities in mind, overlooking their distinct roles, time constraints, and knowledge. As a result, even well-intentioned innovations can widen gender gaps if they fail to address these underlying inequalities. Ensuring that women can fully participate in and benefit from innovation processes is therefore essential for achieving equitable and effective innovation.

Common Constraints for Women

- ACCESS TO RESOURCES – CAPITAL, LAND, CREDIT, INFORMATION
- DECISION MAKING POWER
- MARKET ACCESS, LABOR AND TIME
- SOCIAL NORMS OF ACCEPTED BEHAVIORS

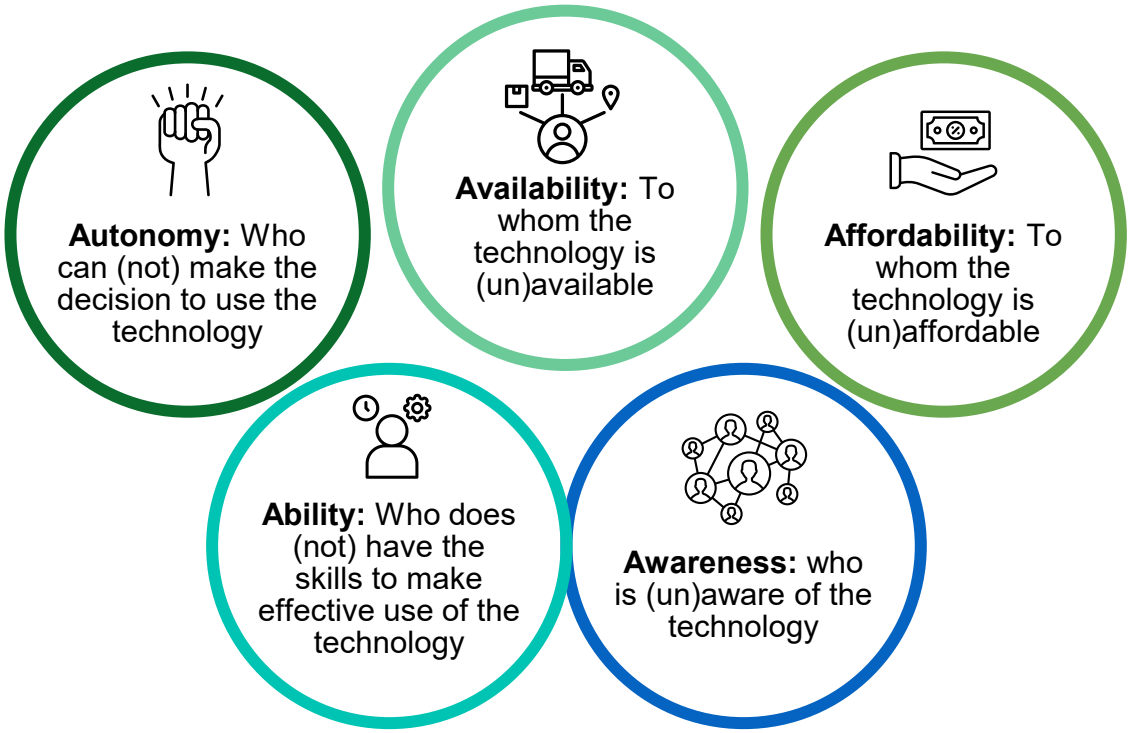


Figure 6. Aspects of Technology Access to Consider in designing inclusive technologies.
Source: Adapted from Robert and Hernandez, 2019 https://doi.org/10.1002/isd2.12084

Gender Differences in Innovation Preferences

Men and women may prefer different technologies because of differences in roles, responsibilities, and priorities within agricultural systems. Women often focus on labor-saving tools, household food production, and postharvest processing, while men may prioritize technologies that increase field-level productivity or income from cash crops. Time constraints, physical demands, access to resources, and control over outputs also shape preferences. Designing technologies without considering these differences can limit adoption and reduce impact, whereas gender-responsive innovation ensures that tools meet the diverse needs and capacities of all users.

Examples of differing technology preferences:

Sweet Potato Varieties in Tanzania

- Women grew many varieties, including those with low market demand, but considered beneficial to a family's well-being. These varieties possessed positive traits such as big root size, high dry matter content, high yields and good taste.
- Men focused on varieties with a high market demand.

https://doi.org/10.4160/9789290606130

Postharvest loss technology in Nigeria:

- Farmers, dealers and transporters (primarily men) prefered reusable plastic crates because they are rigid, and stackable, making them easier to handle and transport to wholesale markets compared to traditional woven baskets.
- Retailers (primarily women) find the crates difficult to transport on smaller modes of transport they rely on, like motorcycles, or on foot.

https://doi.org/10.5304/jafscd.2025.144.013

Digital Agro-Advisory AI in Kenya:

- Women were less likely than men to submit advisory questions through this service because of language barriers in using the AI, which primarily operates based on English.
- Men were more comfortable with English, and submitted more questions, which could result in biasing the AI responses towards topics that concern men, and thus may under-address topics that concern women,

https://cgspace.cgiar.org/server/api/core/bitstreams/2e3fc9e6-013b-4ba1-9c6e-733d4ae59013/content

Human-Centered Design in Agricultural Innovation

Human-Centered Design (HCD) is an approach to innovation that keeps the people who will ultimately use or be affected by a solution at the center of the design process. It emphasizes empathy, co-creation, prototyping, and iteration - ensuring that technologies or systems are not simply developed for users but developed with them. By engaging users early and continuously, HCD helps surface real needs and behaviors, uncovers hidden barriers, and increases the likelihood that innovations will be adopted, scaled, and sustained. Key principles of HCD include: understanding user context through empathy; defining problems from the user's perspective; ideating solutions with diverse stakeholders; creating rapid prototypes; and testing and refining those prototypes based on real-world feedback (Figure 7). The Alliance defines this approach an iterative, five-phase process of: (i) identifying a research problem or challenge (Scope), (ii) gathering user information (Explore), (iii) designing prototypes (Create), (iv) evaluating prototypes in pilots with users and stakeholders (Validate), and finally (v) restarting the design cycle based on continuous evaluation that takes place during the scaling phase of the tool or solution (Scale)

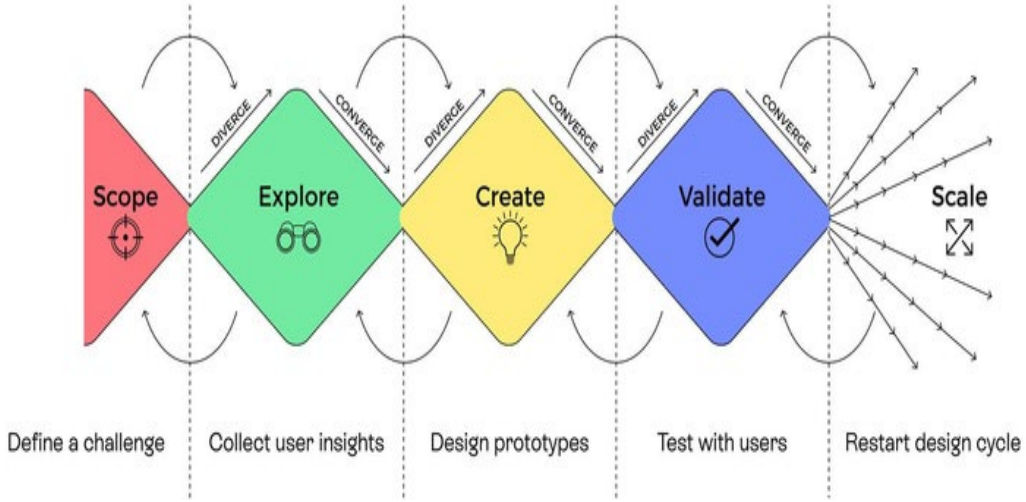


Figure 7. Design cycle of the HCD approach implemented in the Bioversity-CIAT Alliance.
Source: Alliance Inclusive Design and User Research Team. https://alliancebioversityciat.org/stories/human-centered-design-approach-capacity-building-and-co-design-inclusive-tools-agriculture

Applicaton: Rwanda Mobile Diet Quality Survey

The CGIAR Initiative on Digital Innovation team sought to collect disaggregated diet-quality data via mobile phones. Although the system already worked, issues emerged: older participants and some demographic groups struggled with the user interface and question wording. Recognizing these challenges, the team engaged HCD experts who conducted usability testing with a diverse group of users (both women and men), observed how respondents interacted with the survey and recorded their body language and feedback. Based on these insights, they redesigned key elements—such as simplifying language, adding progress indicators, and allowing sessions to be paused and resumed. After implementation, the completion rate rose from 58 % to 70 % (75 % among women) and the rate of low-quality responses dropped from 22.6 % to 11.7 %. This improvement not only increased inclusivity (especially women and older users) but also saved cost—approximately US $8,000 in reduced discarded data and further savings from higher response rates. The project demonstrates how HCD is not just a design nicety but a strategic investment in adoption, equity, and scalability in agricultural and food-systems innovation.

https://doi.org/10.31220/agriRxiv.2024.00288

While Stage 0 of GenderUp aims to embed inclusive, HCD principles from the very start of innovation creation, designing for equity and scale is a continuous learning process. To support teams in this journey, the CGIAR User Research Toolkit provides further guidance on planning and implementing user research, understanding bias, and adapting standard methods for diverse settings: UX Tools for Agriculture+2CGIAR+2 . Teams should start there and use Stage 0 guiding questions to deepen your work and better equip the transition to the inclusive scaling phases.

Equitable Innovation Design

Use these as guiding questions during your innovation design process, to set a strong foundation for inclusive and responsible innovation and scaling.

1. Scope: Define a Challenge

- **What specific problem are we trying to solve for different user groups?**
- **Who is defining the problem? Are the appropriate stakeholders represented in defining this problem (and solution)?**
- **What assumptions are we making about users' needs, preferences, or capacities that should be tested or challenged?**

2. Explore: Collect User Insights

- **Who are the anticipated beneficiaries of the intervention/innovation? Who else might be directly or indirectly affected?**
- **Which outcomes are most meaningful and valuable to the people we are designing for?**
- **How can we ensure that all relevant voices, especially women, youth, and marginalized groups, contribute to idea generation?**

3. Create and Validate

- **What existing local solutions, practices, or knowledge can we draw upon to strengthen our ideas?**
- **What are the daily challenges, priorities, and constraints shaping these users' experiences?**
- **Which design elements could be adapted to fit different genders, social roles, or local contexts?**

STAGE 1

1

DEFINING THE SCALING AMBITION

Lay out the current scaling strategy and begin to identify where adjustments may need to be made within the scaling context

Objectives

01 Your team will document the current scaling strategy for your innovation

02 Your team will understand the concept of gender and why it is important in innovation and scaling

Introduction to Scaling

Scaling refers to the process of increasing and expanding the use, adoption, or influence of a specific innovation beyond its initial context or pilot phase. It is not only about reaching more users but also about deepening and sustaining the innovation's benefits across diverse settings.

A scaling strategy, depicted below in Figure 8, is a coordinated plan that outlines the strategies, activities, and actors needed to overcome barriers or bottlenecks that limit the broader use and impact of an innovation. Effective scaling strategies recognize that innovations interact with complex systems involving policies, markets, institutions, and social norms. Responsible and inclusive scaling depends on cultivating enabling environments, conditions that support innovations to grow and sustain lasting impact, including the policies, markets, infrastructure, and social norms. A strong enabling environment provides supportive regulations, access to finance, coordination among stakeholders, and public awareness, while also addressing barriers such as inequitable power dynamics or restrictive norms.

To scale effectively and responsibly:

- Aim for systems change at scale, rather than simple replication of technologies.
- Engage all relevant stakeholders, including end users, policymakers, private sector actors, and community leaders, in the scaling process.
- Respect and integrate local contexts, including traditional knowledge, socio-cultural dynamics, and existing community practices.
- Adapt innovations through iteration and feedback loops, allowing for continuous learning, local adaptation, and refinement based on user experiences and context.
- Strengthen enabling environments by aligning policies, incentives, institutional capacities, and market systems that support the sustained uptake and equitable impact of innovations.

Scaling, when approached in this way, becomes not a linear expansion but an adaptive, participatory, and inclusive process that strengthens both innovation systems and the enabling conditions needed for their long-term success.

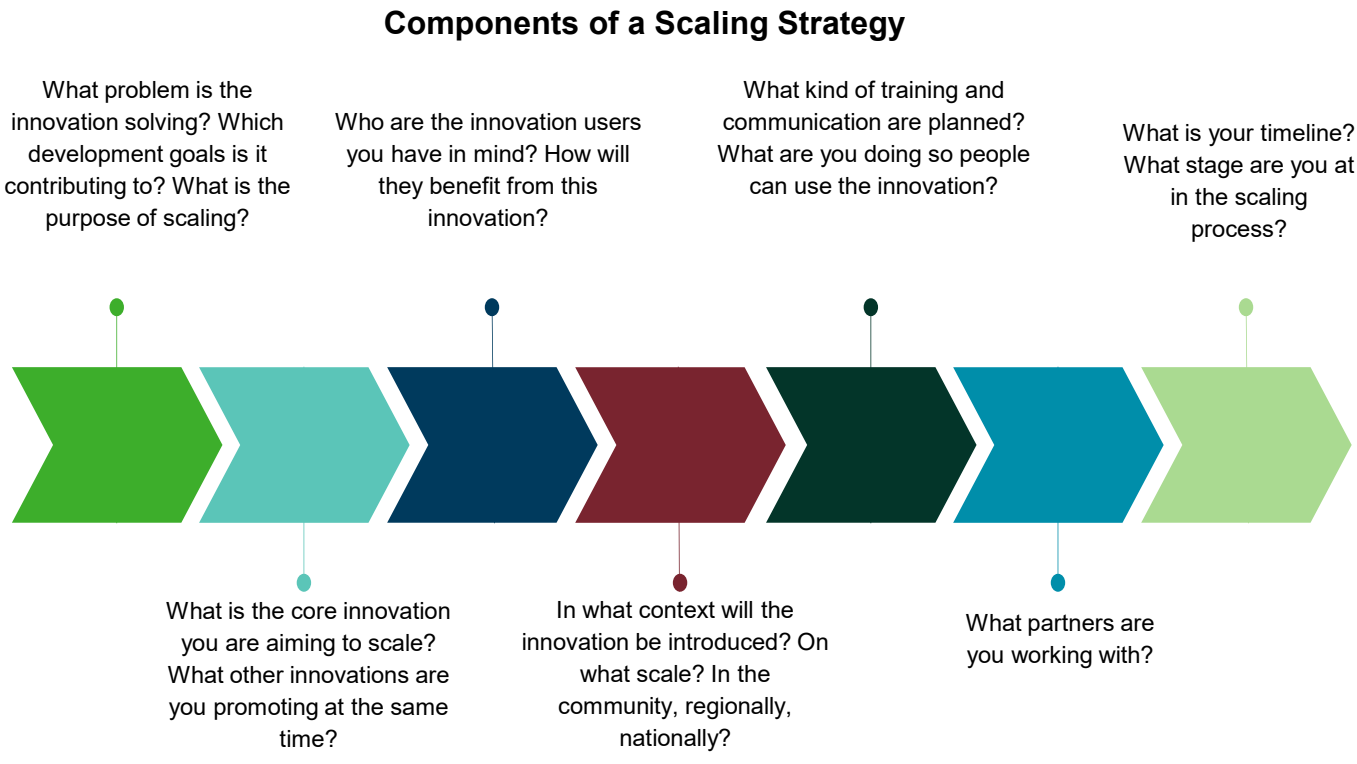


Figure 8. Showing components of a scaling strategy for innovation systems

Stage 1a: Defining the Innovation and Scaling Ambition

Answer the following questions with your team based on your current scaling plan.

Your Innovation		The Context	
What is the core innovation you are aiming to scale?		Are there other innovations or changes that are necessary for your innovation to scale successfully?	
Describe which problem the innovation is solving.		Describe the context (social, geographical, agricultural) where the innovation will be launched.	
What is the purpose of scaling the innovation?		Describe what your innovation will replace.	
Who will use the innovation?		At which scale do you want to have an impact (community, regional, national?)	
Describe what social change the innovation is trying to achieve.		What is your desired timeline for that impact to be realized?	

Stage 1b: Current Scaling Strategy

Answer the following questions with your team based on your current scaling plan.

RBET Framework

The RBET framework stands for Reach, Benefit, Empower, and Transform -- a structured way to understand and measure how gender and social inclusion interventions create change over time (see Figure 9). It was developed by CGIAR's Gender Impact Platform to help projects assess not just who participates in an innovation, but how deeply that engagement shifts power, agency, and systems.

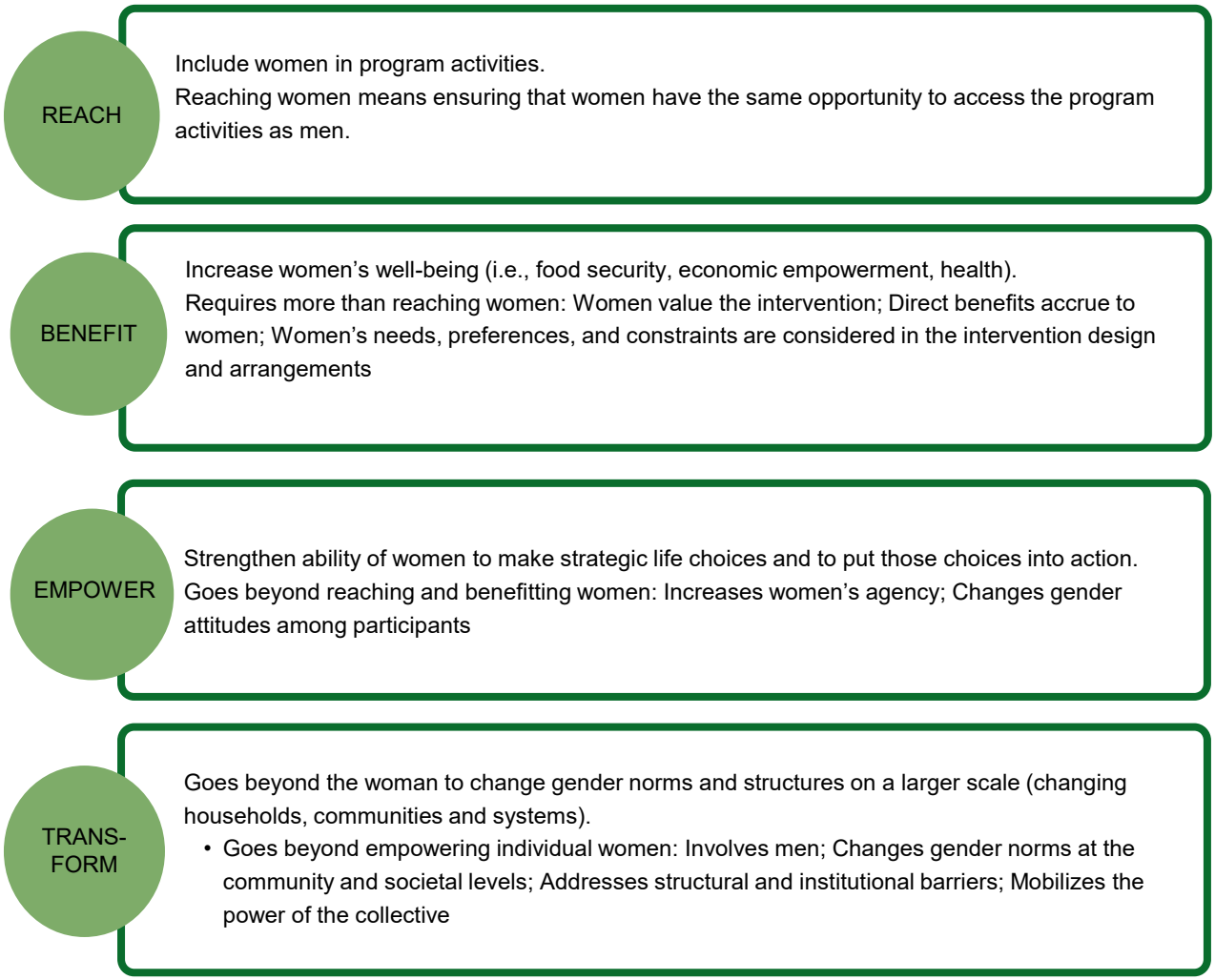


Figure 9. A description of the RBET framework.
Source: Hazel Malapit, IFPRI. RBET Presentation, October 2024.

You may find it helpful to watch this short video that breaks down this framework:
https://www.youtube.com/watch?v=fLGeZBLpaBY

Activity 2: RBET in Practice

The following activity is meant to (1) Provide you with a straightforward framework for assessing project impacts on women and marginalized groups and (2) Apply the framework to example project indicators.

Instructions: Once your team has reviewed and understood the RBET terms, read through each indicator and discuss within your team whether you think each indicator falls under Reach, Benefit, Empower, or Transform. This activity is to encourage discussion, not necessarily come to consensus. However, our own categorizations are listed on the next page.

Indicators:

	R	B	E	T
1 number of women consulted on marketing/dissemination campaigns	■	■	■	■
2 percent increase in women reporting control over income generated by irrigation	■	■	■	■
3 changes in attitudes regarding women's control over income and use of SSI technology	■	■	■	■
4 percent increase in water user association members who are women and able to access water	■	■	■	■
5 percent increase in women reporting enhanced tenure security over irrigated land	■	■	■	■
6 number of women participating in training/events	■	■	■	■

Activity 2: RBET in Practice - Categorizations

Reach	Benefit	Empower	Transform
• # of women participating in training/events • # of women consulted on marketing/ dissemination campaigns	• % increase in water user association members who are women and able to access and use the water	• % increase in women reporting control over income generated by irrigation • % increase in women reporting enhanced tenure security over irrigated land	• Changes in attitudes regarding women's control over income and use of SSI technology

2

STAGE 2

EXPLORING RELEVANT DIVERSITY

Explore social dimensions (gender, wealth status, age, etc.) relevant to the scaling context

Objectives

01 Your team will understand why it is important to consider different social dimensions when scaling

02 Your team knows how these social dimensions can intersect with gender

Relevant Social Dimensions

Scaling agricultural innovations equitably requires recognizing the social dimensions that shape people's ability to participate in and benefit from change. A social dimension refers to an aspect of identity or circumstance, such as gender, age, education, or wealth, along which individuals can be grouped and compared. Not all social dimensions are relevant in every scaling context, but identifying the relevant social dimensions ensures that interventions are inclusive and that benefits are distributed equitably.

When scaling innovations, examining relevant social dimensions helps identify who benefits and who risks exclusion. For example, differences in land ownership, mobility, or education may shape the capacity of different groups to engage in new agricultural technologies. Considering these dimensions early in design and scaling enables more effective, just, and sustainable outcomes.

Below in Figure 10, are the social dimensions we often use in this context, as well as different ways people may be categorized within each dimension.

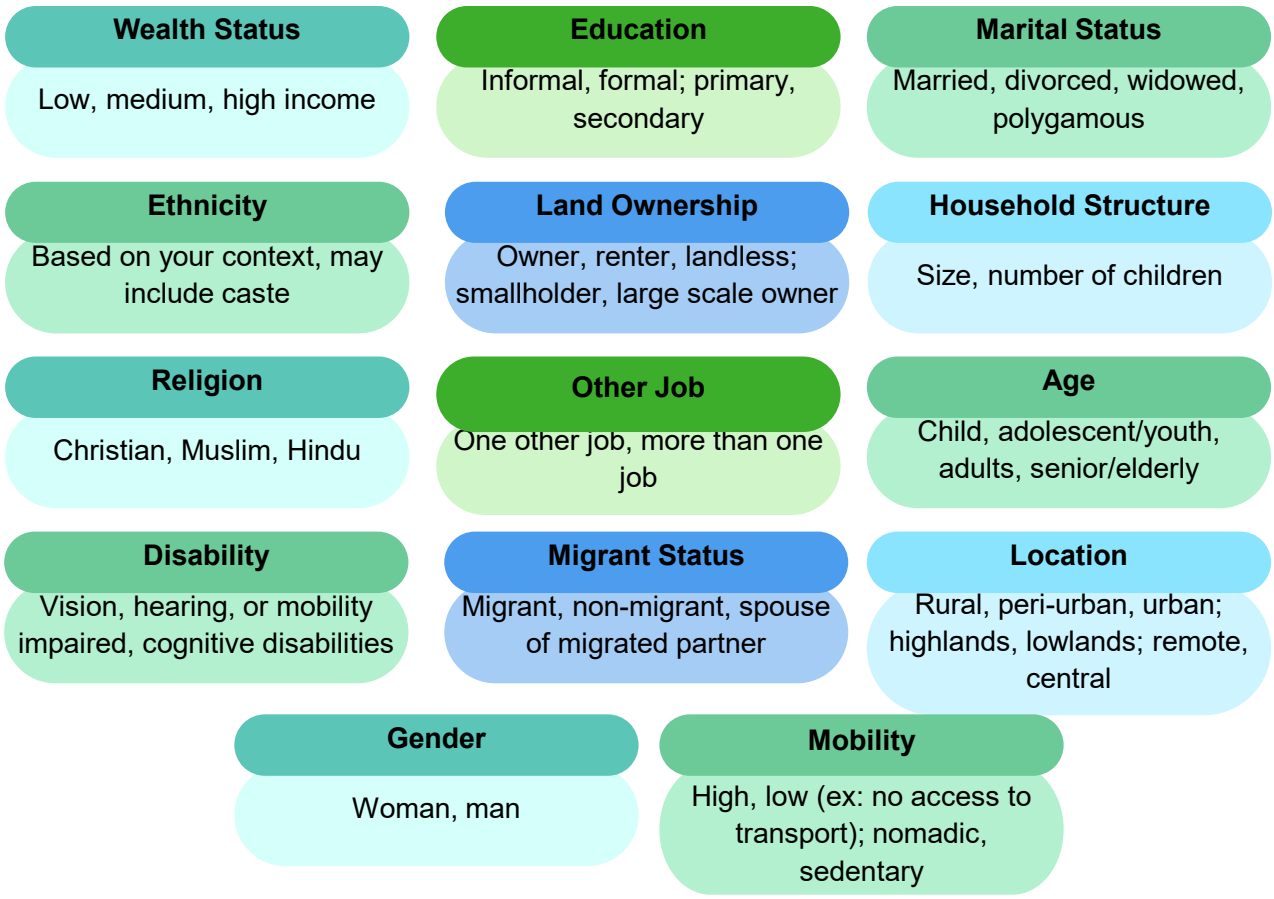


Figure 10. A description of the relevant social dimensions that shape people's privileges and marginalities. Adapted from Kimberly Crenshaw Intersectional wheel diagram in: Crenshaw, K. (1989). "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics." University of Chicago Legal Forum.

How Might Different Categories Influence How an Individual Experiences an Innovation in Terms of Preference and Use?

Below are a few examples. These experiences will differ based on local context, emphasizing the need for diverse user representation in innovating and scaling.

Religion

Some Buddhist farmers may prefer natural pest control methods over chemicals

Gender

Woman farmers may not be able to access the credit necessary to buy novel seeds

Mobility

Farmers with low mobility may not be able to access replacement parts for a technology

Marital Status

A widowed woman may have more autonomy to decide to use a new technology

Land Ownership

Farmers on rented land may not have the land security to invest in restoring soil fertility

Household Structure

Large families may be less interested in labor saving technologies

Intersectionality

Intersectionality refers to how multiple social dimensions - such as age, wealth status, ethnicity, etc. - interact to create overlapping systems of advantage and disadvantage (Figure 11). Rather than viewing each identity factor in isolation, an intersectional approach recognizes that individuals experience inequality differently depending on the combination of their social positions.

Here, we view gender and social dimensions as overlapping and interacting, not as separate categories. The specific intersections between them often shape gender differences that impact the ability to use and benefit from an innovation.

For example, a young, landless woman farmer may face more constraints than an older male farmer of the same income level, due to the interplay of gender norms, age hierarchies, and property rights. Ignoring such intersections risks reinforcing existing inequalities or overlooking the needs of marginalized groups.

In agricultural scaling, applying an intersectional lens allows researchers and practitioners to identify which groups are most vulnerable to being left behind in order to tailor appropriate Innovation Packages accordingly.

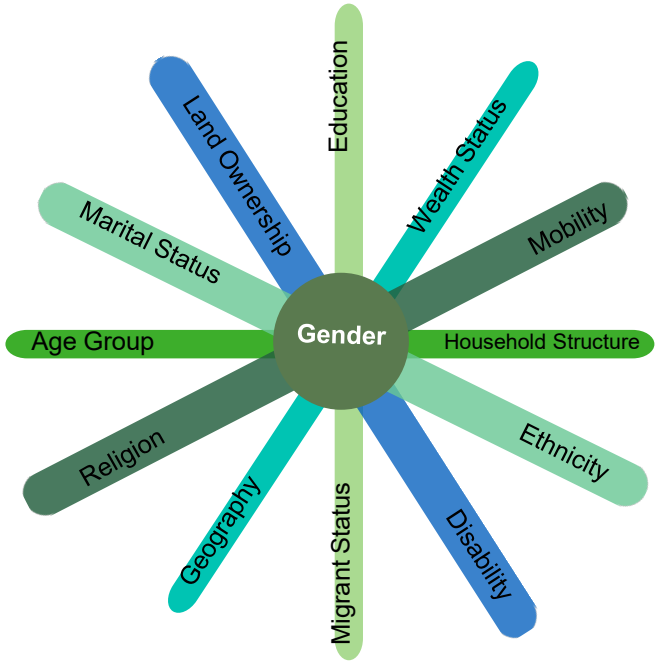


Figure 11. A description of the Intersectional wheel diagram.
Source: Kimberly Crenshaw in: Crenshaw, K. (1989). Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics." University of Chicago Legal Forum.

Intersectionality in Practice

Contrasting Impacts of Agricultural Innovations

One layer of social dimensions - gender

Microfinance Loans in India

Men: Used the loan to purchase productive agricultural assets.

Women: Used the loan to purchase productive assets, but they don't have control over those assets, so they struggle to repay the loan and are forced to sacrifice time/control over family resources.

https://doi.org/10.1016/j.worlddev.2007.11.008

Forage chopping machine in Tanzania

Men: Took over forage chopping due to social norms associating mechanization with men's work

Women: Relieved women from work but built dependencies on men/hired labor, which may negatively influence their autonomy

https://doi.org/10.1016/j.jrurstud.2018.09.012

Additional layers of social dimensions - education, age, etc.

Crop Insurance Contract

Highly educated Women: Understand the contract and continue signing up each year - losses are covered in a future bad year. Woman farmers may not be able to access the credit necessary to buy novel seeds

Low-educated Women: Do not fully understand the contract, so stop signing up after not receiving a payout in the first year - lose capital

https://doi.org/10.1016/j.gfs.2023.100672

Horticulture Marketplace Application

Young Women: Connected young digital-literate women with a new network of buyers

Elderly Women: Excluded older women with low digital literacy from selling their produce to new buyers

Malawi GenderUp Workshop, 2023

Contrasting impacts of agricultural innovations across gender and other social dimensions exemplify the need for a nuanced understanding of intersections in scaling. The more social dimensions considered, the more complicated it is to ensure positive impacts for all users and non-users. Because of this, it is critical to identify context specific social dimensions that are most relevant to wide-scale innovation use and benefit.

For more information and examples of intersectionality, the following article is highly recommended:
Tavenner, K., Crane, T. A., Bullock, R., & Galiè, A. (2022). *Intersectionality in gender and agriculture: toward an applied research design*. Gender, Technology and Development, 26(3), 385–403.
https://doi.org/10.1080/09718524.2022.2140383

Activity 3: Positionality Reflection

Before thinking about the social dimensions of our innovation users, let's think about our how own social dimensions intersect. Positionality refers to recognizing how our own social identities, experiences, and power dynamics - such as gender, profession, class, or culture - influence how we design, interpret, and scale innovations. Reflecting on your own positionality can help identify your own biases and assumptions.

Social identities of innovation team members impact what expertise is prioritized and can create blind spots in the scaling strategy.

Individual: Spend 5-10 minutes reflecting on the social categories that you identify with. Use the following questions as guidance and space below for any notes.

- How do your identities represent privilege or marginalization?
- How do your identities influence your perspective when scaling this innovation?

Relevant Social Dimensions Survey

To complete the Stage 2 Worksheet, complete the following survey individually, answering with your specific innovation and the local scaling context in mind. You may notice some questions repeat or rephrase similar topics - this is deliberate. The small variations help you consider the issues from different angles and dig a little deeper based on what you've just learned.

It's normal not to have answers for every question or to feel uncertain. Save any uncertainties or examples you'd like to explore further and explore them in the group discussion that follows.

1.What is your innovation? _____

Section 1: Ability to use the innovation

This section explores how intended users of the innovation may differ in their ability to use the innovation. Particularly, we will look at what is needed to use the innovation - and what groups of people have access to these resources.

2. To use the innovation, an individual must have access to the following: (select as many as apply)

- ☐ Land
- ☐ agricultural inputs
- ☐ labor
- ☐ technical skills/knowledge
- ☐ market linkages
- ☐ extension advice
- ☐ Financial resources
- ☐ Utilities (electricity, water, internet, etc
- ☐ time (self and/or other's)
- ☐ Machinery/tools
- ☐ autonomy
- ☐ other resources

3. If you mentioned other resources are required to use this innovation, please specify which other resources you mean.

_____

_____

_____

4. For each of the following resources that you selected in Q3, check all social dimensions that may impact access to that resource. Reference the Glossary of Terms in the Appendix for definitions of the social dimensions. Do not feel limited by the provided dimensions and categories.

	Wealth Status	Edu-cation	Ethnicity	Land Owner-ship	Marital Status	House-hold Structure
Land						
Agricultural Inputs						
Labor						
Technical skills/know-ledge						
Market Linkages						
Extension Advice						
Financial Resources						
Utilities						
Time (self and/or others)						

5. Does gender intersect with your selected social dimensions to impact access to these resources?

	Yes - there are gender differences	No - there are not gender differences	Maybe - there might be gender differences
Wealth Status	○	○	○
Education	○	○	○
Ethnicity	○	○	○
Land Ownership	○	○	○
Marital Status	○	○	○
Household Structure	○	○	○
Religion	○	○	○
Other job(s)	○	○	○
Age Group	○	○	○
Mobility	○	○	○
Migrant Status	○	○	○
Location	○	○	○
Disability	○	○	○
Gender	○	○	○
Other Social Dimensions	○	○	○

Section 2: Potential negative impacts for intended innovation users and individuals directly interacting with an innovation user

This section explores potential negative impacts that may be experienced by intended innovation users and/or people who directly interact with an innovation user.

Below are some examples to help you think about potential negative impacts. These examples illustrate how negative impacts can occur, but they are not meant to limit your thinking to just these scenarios. Consider both an intended innovation user and non-users when thinking about the following potential negative impacts.

6. Check the most appropriate sentence(s):

Use of the innovation could lead to _____.

- ☐ an increased labor burden - Kansanga et al. (2019) find that new mechanized technologies in Northern Ghana reduced demand on men's labor, enabling them to expand crop cultivation. However, the same technology raised the labor demand on women's gender-ascribed roles of sowing and weeding.
- ☐ less access to one or multiple resources (crowding out) - In Kenya, hotels in a tourist area use solar and diesel water pumps, while locals rely on handpumps. The hotels extract water at high rates with these efficient pumps, reducing groundwater availability. This has increased water costs for local residents and increased the time spent to find and collect water, especially for women and girls (Ferrer et al., 2019).
- ☐ decreased ability to sell or buy from local markets (change in scale) - The introduction of encircled fishing nets in India led to an increase in the size of fishing boats, which must be launched out of a harbor rather than local fishing villages (Gopal et al., 2014). Consequently, women, who also manage household responsibilities, find it difficult to go to the harbors when the boats return, leading to a significant decline in their participation in the marketing channel (John, 2009).
- ☐ unemployment/reduced demand for labor - In the Mekong Delta, Paris and Chi (2005) found that plastic drum seeders benefited better-off households but ultimately resulted in the loss of livelihoods for women from more impoverished and landless households who used to be hired to undertake these tasks.
- ☐ less autonomy or decision making power - In Uganda, a silage chopping machine was introduced to reduce the labor burden on women. However, the machine was perceived as too difficult to operate, resulting in a reliance on men who owned and operated the machine (Kawarazuka et al., 2018).
- ☐ increased social risk - In Ghana, a 2018 study of unintended consequences of a microfinance initiative found that while it promotes female entrepreneurship, it can also increase gender based violence risks because male spouses "feel threatened by female independent decision making," so they seek ways to address the shift in power.
- ☐ increased economic risk - In Botswana, Hovorka (2005) observed that despite financial support given to low-income women to start food businesses, low-income men were able to secure better land and markets. This disparity made men's businesses more profitable and sustainable, posing an economic risk to the women's ventures by potentially driving them out of the market.
- ☐ other potential negative impact (please list):

_____

7. What social dimensions are most influential in determining which individuals may experience the impacts you selected in Q6. (select as many social dimensions as apply)

	an increased labor burden	less access to one or multiple resources (crowding out)	decreased ability to sell or buy from local markets (change in scale)	unemployment or reduced demand in labor	less autonomy or decision making power	increased social risk	increased economic risk	other potential negative impact
Wealth Status								
Education								
Ethnicity								
Land Ownership								
Marital Status								
Household Structure								
Religion								
Other job(s)								
Age Group								
Mobility								
Migrant Status								
Location								
Disability								
Gender								
Other Social Dimensions								

8. Does gender intersect with your selected social dimensions to impact these individual consequences?

	Yes - there are gender differences	No - there are not gender differences	Maybe - there might be gender differences
Wealth Status	○	○	○
Education	○	○	○
Ethnicity	○	○	○
Land Ownership	○	○	○
Marital Status	○	○	○
Household Structure	○	○	○
Religion	○	○	○
Other job(s)	○	○	○
Age Group	○	○	○
Mobility	○	○	○
Migrant Status	○	○	○
Location	○	○	○
Disability	○	○	○
Gender	○	○	○
Other Social Dimensions	○	○	○

Section 3: Potential negative community impacts of wide-scale adoption

This section explores what negative impacts may be experienced by community members if your innovation is widely adopted.

Imagine the innovation was widely adopted throughout a community. Consider both intended users and non-users of the innovation when thinking about the following potential negative impacts on community members

9. Check the most appropriate sentence(s):

The wide adoption of the innovation could result in _____.

☐ a shift in community or household power dynamics (example: market control, influence over resources, conflict)

☐ increased market risks (example: market saturation, oversupply, sector displacement, inequity)

☐ decreased food security (example: loss of income, increased competition, decreased dietary diversity, etc.)

☐ increased environmental or health risk for communities (example: pollution, emissions, water scarcity, etc.)

10. What social dimensions are most influential in determining who may experience each of the impacts you selected in Q9 in a community? (select as many social dimensions as apply)

	a shift in community or household power dynamics	increased market risk	decreased food security	increased environmental or health risk for communities
Wealth Status				
Education				
Ethnicity				
Land Ownership				
Marital Status				
Household Structure				
Religion				
Other job(s)				
Age Group				
Mobility				
Migrant Status				
Location				
Disability				
Gender				
Other Social Dimensions				

11. Does gender intersect with your selected social dimensions to impact these community consequences?

	Yes - there are gender differences	No - there are not gender differences	Maybe - there might be gender differences
Wealth Status	○	○	○
Education	○	○	○
Ethnicity	○	○	○
Land Ownership	○	○	○
Marital Status	○	○	○
Household Structure	○	○	○
Religion	○	○	○
Other job(s)	○	○	○
Age Group	○	○	○
Mobility	○	○	○
Migrant Status	○	○	○
Location	○	○	○
Disability	○	○	○
Gender	○	○	○
Other Social Dimensions	○	○	○

12. How confident are you about the accuracy of your answers given within this survey?

O I am confident of the accuracy.

O I am somewhat confident of the accuracy.

O I am unsure of the accuracy.

O I am unsure of the context and would like to learn more.

Individual Survey Results

After completing the Relevant Social Dimensions Survey, individually assess your responses using this worksheet. Once you have completed this activity, your team will aggregate all results and discuss which social dimensions might be the most relevant for our specific innovation on the Stage 2 Worksheet.

Section 1: Ability to use the innovation

According to the survey results, what are the 3-5 most relevant resources (e.g., land, labor) that are required to use the innovation? Place these on the left side of the table below.

What 3-5 social dimensions (e.g., wealth status, education, religion) are most influential in impacting access to each of these resources? Place these on the right side of the table below, as they align with each resource.

Resources	Social Dimensions
1)	
2)	
3)	
4)	
5)	

Does gender intersect with the above social dimensions to impact access to these resources? (yes, no, maybe):

Section 2: Potential negative impacts for intended users and non-users

What are the 3-5most significant potential negative impacts for intended users and non-users, according to the survey results? Place these on the left side of the table below. What social dimensions (e.g., wealth status, education, religion) are most influential in determining who may experience each of these impacts? Place these on the right side of the table below, as they align with each impact.

Individual Impacts	Social Dimensions
1)	
2)	
3)	
4)	
5)	

Section 3: Potential negative community impacts of wide-scale adoption

What are the 2-3most significant impacts for those in a community where the innovation is introduced, according to the survey results? *Place these on the left side of the table below.*

What 2-3 social dimensions (e.g., wealth status, education, religion) are most influential in determining who in the community may experience each of these impacts? *Place these on the right side of the table below, as they align with each impact.*

Community Impacts	Social Dimensions

Aggregate Team Survey Results

After each team member has added up their scores on the previous pages, tally up ALL the results from all responses. Ensure the entire team can see the tallied results so participants can reference them for Stage 2 Worksheet on the following page. This can be done using flipcharts, a whiteboard, or an online document.

At the end of Stage 2, your team should arrive at a common understanding of the most relevant social dimensions when thinking about scaling your innovation. You will use these in Stage 3.

Now, use these results to complete the Stage 2 Worksheet.

Stage 2: Exploring Relevant Social Dimensions

Section 1. Ability to use the innovation

According to the survey results, what are the 3-5 most relevant resources (e.g., land, labor) that are required to use the innovation?	What 3-5 social dimensions (e.g., wealth status, education, religion) are most influential in impacting access to each of these resources?	Does gender intersect with these social dimensions to impact access to these resources? (yes, no, maybe)

Section 2. Potential Negative impacts for intended users and non-

What are the 3-5 most significant potential negative impacts for intended users and individuals directly interacting with the user, according to the survey results?	What social dimensions (e.g., wealth status, education, religion) are most influential in determining who may experience each of these impacts?	Does gender intersect with these social dimensions to influence these negative impacts? (yes, no, maybe

Section 3. Potential Negative community impacts of wide-scale adoption

What are the 3-5 most significant impacts for those in a community where the innovation is introduced, according to the survey results?	What social dimensions (e.g., wealth status, education, religion) are most influential in determining who in the community may experience each of these impacts?	Does gender intersect with these social dimensions to influence these negative impacts? (yes, no, maybe)

3

STAGE 3

UNDERSTANDING IMPLICATIONS OF INTERSECTIONALITY

Explore how social dimensions intersect to identify groups that need to be prioritized in the scaling strategy

Objectives

01 Your team has determined which intersectional groups are most vulnerable to experience negative impacts

02 Your team has explored why these intsersectional groups may not benefit and/or experience negative impacts

Stage 3a: Identifying Intersectional Groups

Based on the Stage 2 Worksheet, come to a conensus with your team on the three most relevant social dimensions your team needs to focus on moving forward. Write each social dimension in the column on the left, then discuss and complete the following columns.

PRIORITY DIMENSIONS			PRIORITY INTERSECTIONS
What are the 3 most relevant social dimensions that we need to consider when scaling the innovation?	**What group within each social dimension may not be able to benefit, or may be likely to experience negative impacts?**	**Does gender intersect with these social groups to amplify the negative impacts a person may experience?**	**Which intersectional groups are most vulnerable to experiencing negative impacts? (i.e, Landless widow, uneducated young woman, migrant man, etc.)**
Relevant Social Dimension 1			Intersectional Group 1
Relevant Social Dimension 2			Intersectional Group 2
Relevant Social Dimension 3			Intersectional Group 3

Activity 4: Persona Mapping

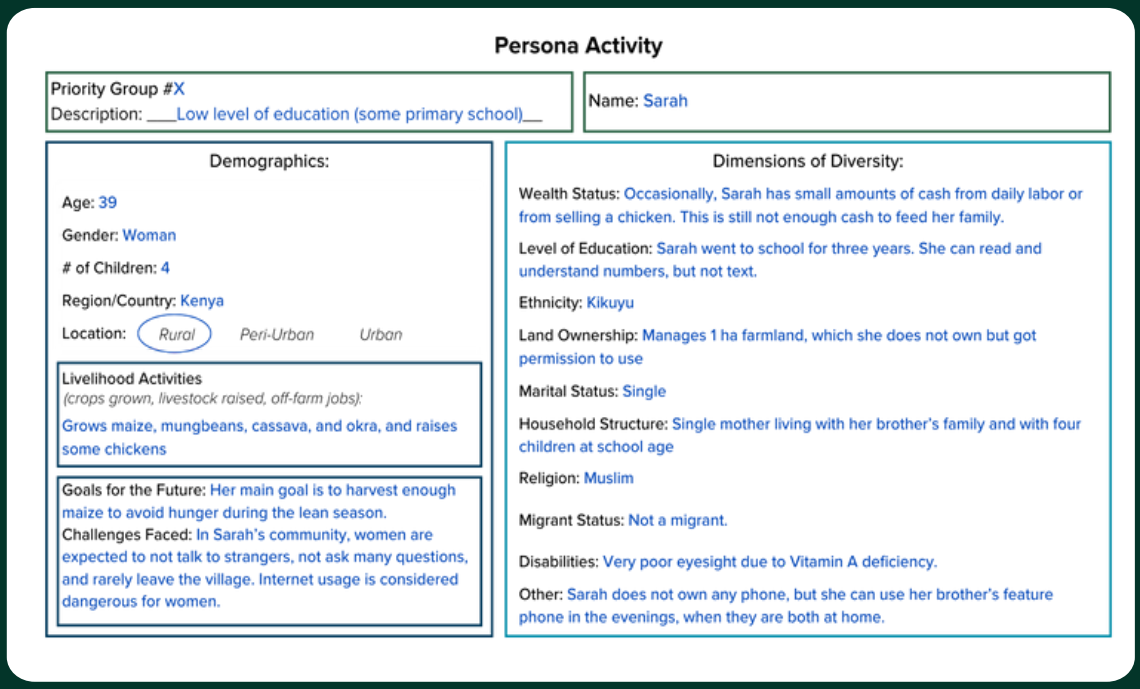
The following activity is meant to help your team better envision innovation users/non-users who fall under the "intersectional groups" identified in Stage 3a. By thinking deeper about their demographics and potential experiences with the innovation, we can understand how each user may benefit, or not benefit, from this innovation.

This activity works best when the innovation team is very familiar with the demographics of their focus user groups. If they are not familiar, some research may be required to effectively use this activity.

Instructions: *Split into groups, with each group focusing on one of the "intersectional groups" identified in Stage 3a. Fill in each box of the Persona Map on the following page for a user you envision to be in that intersectional group.*

Once your group has completed their map, share our your Persona Maps with the rest of the team!
Do you have a more defined picture of each user group in your mind? Think of these personas as you fill in the Whiteboard for Stage 3b.

Here is an example of how you may fill in your Persona Map:



Persona Activity

Priority Group #X
Description: ___Low level of education (some primary school)__

Name: Sarah

Demographics:

Age: 39

Gender: Woman

# of Children: 4

Region/Country: Kenya

Location: (Rural) Peri-Urban Urban

Livelihood Activities
(crops grown, livestock raised, off-farm jobs):
Grows maize, mungbeans, cassava, and okra, and raises some chickens

Goals for the Future: Her main goal is to harvest enough maize to avoid hunger during the lean season.
Challenges Faced: In Sarah's community, women are expected to not talk to strangers, not ask many questions, and rarely leave the village. Internet usage is considered dangerous for women.

Dimensions of Diversity:

Wealth Status: Occasionally, Sarah has small amounts of cash from daily labor or from selling a chicken. This is still not enough cash to feed her family.

Level of Education: Sarah went to school for three years. She can read and understand numbers, but not text.

Ethnicity: Kikuyu

Land Ownership: Manages 1 ha farmland, which she does not own but got permission to use

Marital Status: Single

Household Structure: Single mother living with her brother's family and with four children at school age

Religion: Muslim

Migrant Status: Not a migrant.

Disabilities: Very poor eyesight due to Vitamin A deficiency.

Other: Sarah does not own any phone, but she can use her brother's feature phone in the evenings, when they are both at home.

This activity has been adapted from The Alliance Bioversity and CIAT's Rapid inclusivity assessment for digital agriculture services. Resources from the assessment can be found here: https://cgspace.cgiar.org/handle/10568/128173

Stage 3b: Understanding the Implications of Intersectionality

Using the intersectional groups identified in the Stage 3a Worksheet, complete the following as a team. Note that these discussions should be grounded within your own context. If your team is having difficulty answering these questions, it may be beneficial to consult a trained facilitator or other gender/social specialist, or conduct further background research.

	HOW will this intersectional group benefit or not benefit from the innovation? What negative impacts might they experience?	**WHY will this intersectional group either not benefit or experience negative impacts? (i.e., what is driving their experiences?)**
Intersectional Group 1		
Intersectional Group 2		
Intersectional Group 3		

4

STAGE 4

MITIGATING NEGATIVE IMPACTS

Revisit the original scaling strategy and re-think scaling activities given the identified barriers

Objectives

01 Your team has identified interventions to prevent, mitigate, or minimize negative impacts of scaling for vulnerable groups

02 Your team has adapted its Scaling Strategy to pave the way for more inclusive and responsible scaling of your innovation

Mitigating Activities

Mitigating activities are actions designed to reduce or prevent potential negative outcomes that may arise when an innovation is scaled. These activities address enabling environment conditions for different groups, to mitigate unintended consequences such as reinforcing social inequalities, excluding certain groups, or creating environmental or economic trade-offs. For example, if an agricultural technology increases labor demands for women, a mitigating activity might include promoting labor-saving tools or community childcare arrangements. Mitigating activities ensure that scaling efforts are responsible, inclusive, and sustainable by anticipating risks.

Complementary innovations are a type of mitigating activity that enhance the effectiveness, inclusivity, or sustainability of a core innovation to help create the enabling conditions necessary for successful scaling. For instance, introducing mobile-based market information services alongside new seed varieties can improve farmers' ability to make profitable use of the technology. Complementary innovations can be technical (e.g., irrigation systems), institutional (e.g., farmer cooperatives), or social (e.g., gender norms training) and are often essential for achieving equitable and durable outcomes. Together, mitigating activities and complementary innovations strengthen scaling pathways by ensuring that innovations do not operate in isolation, but within supportive systems (enabling environments) that balance benefits, risks, and inclusivity.

Examples of Mitigating Activities

Trainings

Trainings for men and women on household dynamics to build confidence of both parties to use innovation.

Adjusting training times, location, and content to be more accessible and inclusive of women.

Providing transportation services or childcare during the trainings could also increase women's participation.

https://doi.org/10.1016/j.gfs.2024.100778

Communications

Develop a video or drama to share important information about how to use the innovation, instead of using written and print resources.

Utilize existing and understandable social media outlets such as WhatsApp or Facebook.

Utilize interactive voice response (IVR) instead of SMS when sending messages to illiterate farmers.

https://doi.org/10.1016/j.gfs.2024.100778

Partnerships

Partnering with relevant cooperatives to better reach existing social groups.

Partnering with the private sector, government entities, micro-finance institutions, and other NGOs to better understand and address local constraints.

Innovation Packages

An **innovation package** refers to a set of interrelated components, including a core innovation and its complementary innovations, that together enable successful adoption and scaling to specific user groups.

As previously discussed, the core innovation may be a technology, practice, or approach, while complementary innovations include the supporting systems, behaviors, or enabling conditions that make it functional and sustainable in real-world contexts.

An innovation package is not considered ready or mature if either the core innovation or any of its complementary innovations are not yet developed, adapted, or ready for use in the intended context as depicted in this diagram (Figure 12). Ensuring that all elements of the package are contextually appropriate, user-informed, and aligned with local capacities and systems is essential for achieving meaningful, scalable outcomes.

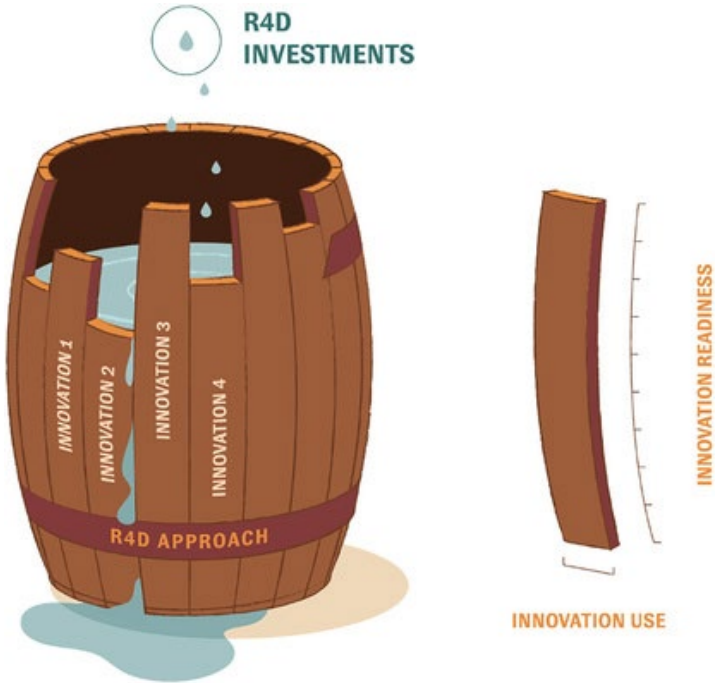


Figure 12. Drawing from Sartas, M., Schut, M., Thiele, G., Proietti, C. & Leeuwis, C. (2020). Scaling Readiness: Science and practice of an approach to enhance impact or research for development. Agricultural Systems, 183, 102874.

Examples of Innovation Packages

Core Innovation: New Potato Variety

Complementary innovations:

- adapted pest management strategies
- adapted weed control practices
- a novel ploughing / ridging technique
- a licence to release the variety
- a seed potato multiplication arrangement
- a certification and quality control system
- a business model for extension
- a pro-poor credit arrangement

Polar, V., Babini, C., Flores, P., Velasco, C. (2017) Technology is not gender neutral: Factors that influence the potential adoption of agricultural technology by men and women. International Potato Center. La Paz – Bolivia. 41 pp.

Core Innovation: Horticulture Marketplace App

Complementary innovations:

- cell phones and chargers
- internet
- power needed to charge cell phones
- sales policies or contracts when sales are made on the app
- certification and quality control systems for horticultural produce

Malawi GenderUp workshop, 2023

Using the Stage 4 Worksheet, you will create inclusive Innovation Packages for each of your identified intersectional groups!

Equality vs. Equity

Introducing a core innovation on its own may increase access to new technologies or practices, but it does not necessarily ensure that all users can benefit equally. For example, while a new agricultural technology may be available to both men and women farmers, differences in land ownership, financial resources, or decision-making power can prevent some groups from fully realizing its advantages.

When a core innovation is embedded within an inclusive innovation package, mitigating activities and complementary innovation, equitable participation and outcomes can be realized.

A core innovation may provide equal access to an innovation (left). However, if those core innovations are part of an inclusive innovation package, then the innovation can be scaled up to provide equitable access to the benefits of that innovation (right) as depicted in Figure 13.

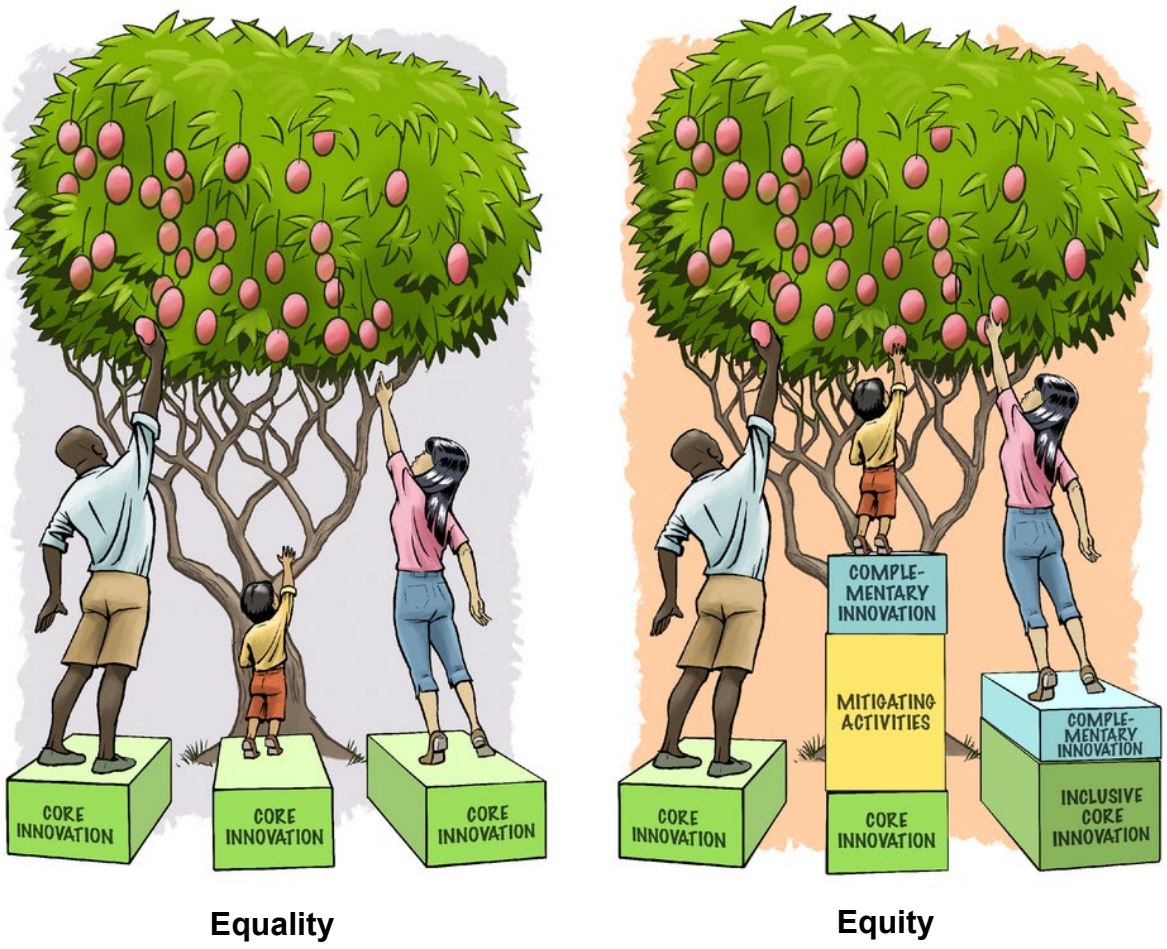


Figure 13. Equality vs. Equity image designed by Roel Seidell.

Stage 4: Mitigating Negative Consequences for Vulnerable Intersectional Groups

With your team, complete the following Worksheet to create an inclusive Innovation Package for each of your identified Vulnerable Instersectional Groups. Some changes and activities will likely be shared across groups. Be sure to reference your Stage 1 Scaling Strategy.

Your Adapted Scaling Strategy

What bottlenecks need to be addressed to mitigate negative impacts?	What needs to be changed in the training plan?	How should communication strategies and media use be changed?	What other mitigating activities (i.e. complementary innovations) are needed?	What new partnerships do we need to establish?

5

INTEGRATING GENDERUP

STAGE 5

Discuss how to incorporate the new, inclusive scaling strategy into project workplans

Objectives

01 Your team will streamline discussions from GenderUp into existing management and staff structures

02 Your team will have concrete next steps for a more inclusive scaling strategy

Stage 5: Integrating GenderUp into your Project Management

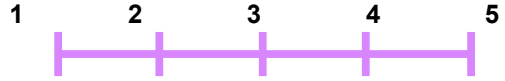
With your team, discuss what actions will be taken to integrate the changes determined in your new, inclusive Scaling Strategy using the following Worksheet. This can be an ongoing discussion and should be revisited and revised throughout implementation. Please note, each intersectional group's Innovation Package may require its own workplan.

	Adapted training plan	Adapted communication strategies and media use	Mitigating activities and complementary	New partnerships
What can we do to achieve this? (i.e., collect data, connect with other stakeholders, etc.)				
Who should act? (i.e., who on the project team, which partner, is it out of your influence?)				
What is our timeline for implementing these new activities / adjustments?				
What indicators and tools are relevant to capturing our scaling process? How can these be used in monitoring and evaluation?				
What impact will this have on our budget? Do we need to seek out additional funding?				

Post-Survey

Complete and reflect on this survey individually to assess your learning and knowledge from the GenderUp process.

1.Please assess the level of attention placed on gender inclusivity in your project now that you completed GenderUp.



Minimal attention placed on gender inclusivity

Strong attention placed on gender inclusivity

2. Is your project planning (or continuing) to collect gender-disaggregated data?

a. Yes
b. No
c. I'm not sure

3. How familiar are you with scaling innovations?

a. Not familiar at all
b. Not very familiar
c. Familiar
d. Very familiar

4. How familiar are you with issues concerning gender and scaling innovations?

a. Not familiar at all
b. Not very familiar
c. Familiar
d. Very familiar

5. For your innovation, how relevant are considerations around gender and socially marginalized groups?

a. Not relevant
b. Not very relevant
c. Relevant
d. Very relevant

6. Are you familiar are you with the idea of "complementary innovations" (innovations that enable the core innovation to have impact at scale)?

a. Yes
b. No

7. Which socially marginalized groups do you believe are restricted from accessing and/or utilizing your innovation in some way? Mark all that apply.

o Women
o Low income groups
o Groups lacking primary/secondary education
o Ethnic minority groups
o Single heads of households
o Religious minority groups
o Youth/Elderly
o Migratory groups
o Remote/hard to reach groups
o Groups with disabilities

8. How much of a priority do you place on scaling up your innovation, now that you've completed GenderUp?

a. No priority
b. Minimal priority
c. Some priority
d. A lot of priority
e. It is my top priority

9. On which geographical scale do you want to have an impact when scaling your innovation?

a. Locally (village-level)
b. Regionally (district-level)
c. Nationally (country-level)
d. International

10. What did you gain from using GenderUp? What changes are you considering making?

GenderUp
A conversational method for responsible scaling

Happy socially responsible scaling!

For questions, to learn more, or to become a certified GenderUp facilitator, visit responsibleinnovations.org

For questions, to learn more, about the use of GenderUp for responsible scaling within CGIAR Scaling for Impact Program, contact o.enokenwabaa@cgiar.org.

Visit the S4I website

References

Hermans, F., Sartas, M., van Schagen, B. et al. Overcoming constraints of scaling: Critical and empirical lessons from a USAID agricultural project in Ethiopia. Sustain Sci 16, 1285–1303 (2021). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8158990/

Leeuwis, C., Wigboldus, S., Bossio, D. et al. Making Scale Work for Sustainable Development: A Framework for Responsible Scaling of Agricultural Innovations. In: Sustainable Development Through Process Integration. Springer, Cham (2020). https://academic.oup.com/book/37010/chapter-abstract/322373205?redirectedFrom=fulltext

Pircher, T., Nertinger, M., Goss, L., Hilger, T., Karungi-Tumutegyereize, J., Waswa, L., & Knierim, A. (2022). Farmer-centered and structural perspectives on innovation and scaling: a study on sustainable agriculture and nutrition in East Africa. The Journal of Agricultural Education and Extension, 30(1), 137–158. https://doi.org/10.1080/1389224X.2022.2156894

Wigboldus, S., Klerkx, L., Leeuwis, C. et al. Systemic perspectives on scaling agricultural innovations. A review. Agron. Sustain. Dev. 36, 46 (2016). https://link.springer.com/article/10.1007/s13593-016-0380-z
Slavchevska et al., 2016; Galiè, Jiggins, & Struik, 2013; SOFA 2011; Dolan and Sorby 2003; Schuster and Maertens 2016.

Peterman et al., 2010; Doss, C. R. (2001); Bonnin & Turner, 2014; Camey & Watts, 1990, 1991

Bullock, R.; Elias, M.; Kawarazuka, N.; Mudege, N.N.; Prain, G.; Rietveld, A.M.; Rozas, L.; Tegbaru, A. 2018. "Women can do it!" Stimulating more inclusive innovation in root crop- and banana-based agri-food systems. GENNOVATE, CGIAR Research Programs on Roots, Tubers and Bananas. 8 p. https://cgspace.cgiar.org/handle/10568/98839

McGuire, E., Rietveld, A. M., Crump, A., & Leeuwis, C. (2022). Anticipating gender impacts in scaling innovations for agriculture: Insights from the literature. World Development Perspectives, 25, 100386. https://doi.org/10.1016/j.wdp.2021.100386

Mudege, N.N; Grant, F.K. 2017. Formative gender evaluation: Technical report on the viable sweetpotato technologies in Africa – Tanzania project. Lima (Perú). International Potato Center. ISBN 978-92-9060-201-9.
Rola-Rubzen, M. F., Paris, T., Hawkins, J., & Sapkota, B. (2020). Improving gender participation in agricultural technology adoption in Asia: from rhetoric to practical action. Applied Economic Perspectives and Policy, 42(1), 125.

Theis, S., N. Lefore, R. Meinzen-Dick, and E. Bryan. 2018. “What Happens after Technology Adoption? Gendered Aspects of Small-Scale Irrigation in Ethiopia, Ghana, and Tanzania.” Agriculture and Human Values 35, 3: 671684. Doi: 10.1007/s10460-018-9862-8

Katie Tavenner, Todd A. Crane, Renee Bullock & Alessandra Galiè (2022) Intersectionality in gender and agriculture: toward an applied research design, Gender, Technology and Development, 26:3, 385-403, DOI: 10.1080/09718524.2022.2140383

Murari Suvedi, Raju Ghimire & Michael Kaplowitz (2017) Farmers’ participation in extension programs and technology adoption in rural Nepal: a logistic regression analysis, The Journal of Agricultural Education and Extension, 23:4, 351-371, DOI: 10.1080/1389224X.2017.1323653

Fischer, G., Wittich, S., Malima, G., Sikumba, G., Lukuyu, B., Ngunga, D., & Rugalabam, J. (2018). Gender and mechanization: Exploring the sustainability of mechanized forage chopping in Tanzania. Journal of Rural Studies, 64, 112–122. https://doi.org/10.1016/j.jrurstud.2018.09.012

Garikipati, S. (2008). The Impact of Lending to Women on Household Vulnerability and Women’s Empowerment: Evidence from India. World Development, 36(12), 2620–2642. https://doi.org/10.1016/j.worlddev.2007.11.008

Timu, A. G., & Kramer, B. (2023). Gender-inclusive, -responsive, and -transformative agricultural insurance: A literature review. Global Food Security, 36, 100672. https://doi.org/10.1016/j.gfs.2023.100672

Hidrobo, M., Kosec, K., Gartaula, H. N., Van Campenhout, B., & Carrillo, L. (2024). Making complementary agricultural resources, technologies, and services more gender-responsive. Global Food Security, 42, 100778. https://doi.org/10.1016/j.gfs.2024.100778

Polar, V., Babini, C., Flores, P., Velasco, C. (2017) Technology is not gender neutral: Factors that influence the potential adoption of agricultural technology by men and women. International Potato Center. La Paz – Bolivia. 41 pp.

Appendices

Appendix A. Glossary of Terms

Innovation and Scaling

- Innovation: Novel practices, products, services, models, and institutional arrangements that have a social and/or economic use in society.
- Core Innovation: The center innovation of an initiative. Its use is expected to contribute to impact at scale.
- Complementary innovations: Additional changes that are necessary to scale core innovations. They often relate to the broader environment and are geared towards making this environment more enabling, thereby allowing the core innovation to have impact at scale.
- Innovation Package: The combination of a core innovation and its complementary innovations that are context, outcome, and user-group specific.
- Human-Centered Design (HCD): An approach to innovation that keeps the people who will ultimately use or be affected by a solution at the center of the design process. It emphasises empathy, co-creation, prototyping, and iteration - ensuring that technologies or systems are not simply developed for users, but developed with them.
- Scaling: The process of increasing and/or expanding the use of a specific innovation, and often decreasing and/or reducing the use of pre-existing practices.
- Scaling strategy: A set of coherent activities, stakeholders, and stakeholder engagement models to overcome one or more scaling bottlenecks.
- Enabling environment: Conditions that support innovations to grow and sustain lasting impact, including the policies, markets, infrastructure, and social norms.
- Intended innovation user: A group or segment of people that is supposed to use and benefit from an innovation.
- Non-user: A group or segment of people that does not use an innovation, or is not able to use an innovation, but who may still be impacted by others using the innovation.
- Unintended impacts: Effects of an innovation that were not anticipated or intended.
- Mitigating activities: Actions taken to reduce negative impacts or enhance positive outcomes of an intervention.

Gender and Inclusivity

- Gender: The social and cultural differences a society assigns to people based on their biological sex, encompassing roles, behaviors, activities, and attributes that a given society considers appropriate for men and women. Gender may influence a person's power and autonomy (ability to make their own decisions).
- Social inclusivity: Improving the ability, opportunity, and dignity of people that are disadvantaged on the basis of their social characteristics to take part in society.
- Social dimension: An aspect or attribute along which people differ (e.g., wealth or age) and can be categorized into groups (e.g., rich or poor, young or old). People can be categorized along multiple dimensions, but not all dimensions are relevant to a particular scaling ambition.
- Relevant social dimension: The identified social dimensions and corresponding distinctions between groups that need to be taken into account to ensure that scaling activities are equitable and inclusive.
- Intersectionality: The interplay of multiple social dimensions that increases vulnerability and inequality in privilege and power, and further entrenches inequalities and injustice. These characteristics are interconnected and cannot be examined separately from one another.
- Intersectional group: A group of people who are categorized by multiple social dimensions, such as gender and wealth.

Social Dimensions used in GenderUp

- Gender: Social and cultural differences assigned based on biological sex.
- Wealth Status: Economic standing. Descriptors: Low, medium, high income.
- Education: Level and type of formal or informal learning received. Descriptors: Informal, formal; primary, secondary.
- Age: Length of time lived, categorized into life stages. Descriptors: Child, adolescent/youth, adults, senior/elderly.
- Land Ownership: Legal right to possess, use, and control land. Descriptors: Owner, renter, landless; smallholder, large scale owner.
- Mobility: Ability to move freely. Descriptors: High (e.g., access to transport), low (e.g., no access to transport); nomadic, sedentary.
- Ethnicity: Shared cultural, linguistic, or ancestral traits. Descriptors: Based on your context, may include caste.
- Migrant Status: Condition of having moved from one place to another. Descriptors: Migrant, non-migrant, spouse of migrated partner.
- Marital Status: Legal standing in relation to marriage. Descriptors: Married, divorced, widowed, polygamist.
- Location: Geographical area of residence. Descriptors: Rural, peri-urban, urban; highlands, lowlands; remote, central.
- Household Structure: Composition of a household. Descriptors: Size, number of children. Disability: Condition limiting movements, senses, or activities. Descriptors: Vision, hearing, or mobility impaired; cognitive disabilities.
- Religion: System of faith and worship. Descriptors: Christian, Muslim, Hindu.
- Other Job: Employment status regarding the number of jobs held which may impact time resources or provide other sources of income. Descriptors: One other job, more than one job.

Appendix B. EXAMPLE: Mechanized Row Seeder in Kenya

Stage 1a: Defining the innovation and scaling ambition

Your Innovation		The Context	
What is the core innovation you are aiming to scale?		**Are there other innovations or changes that are necessary for your innovation to scale successfully?**	Training in machine operation, access to repair services, affordable rental models, and small credit packages.
Describe which problem the innovation is solving.	It reduces labor intensity and time required for planting while improving planting uniformity and crop establishment	**Describe the context (social, geographical, agricultural) where the innovation will be launched.**	Rural Kenyan mixed-cropping systems with high labor burdens, limited mechanization access
What is the purpose of scaling the innovation?	Increase adoption among smallholders so planting becomes faster, less labor-intensive, and more efficient, ultimately increasing yields and household income.	**Describe what your innovation will replace.**	Hand-planting using hoes and sticks, which is time-consuming and physically demanding.
Who will use the innovation?	Smallholder maize and bean farmers, youth service providers, and farmer groups who could collectively own or rent the machine.	**At which scale do you want to have an impact (community, regional, national?)**	Community and county-level uptake, with the potential for regional expansion.
Describe what social change the innovation is trying to achieve.	It supports improved productivity, reduced drudgery, especially for women, and more climate-resilient cropping systems through timely planting.	**What is your desired timeline for that impact to be realized?**	Early results within 1–2 seasons, with wider diffusion within 3–5 years.

Stage 1b: Current Scaling Strategy

Hands-on demonstrations by extension agents, targeting both men and women farmers, and farmer groups.	Radio programs, community demo days, SMS reminders, farmer WhatsApp groups, and local agro-dealer promotions.	Linking farmers to hire services, repair centers, and savings groups for shared ownership.	County extension offices, farmer cooperatives, agro-dealers	Faster planting, reduced labor burden, more timely crop establishment, and potential yield increases.

Stage 2: Exploring relevant social dimensions

Section 1. Ability to use the innovation

According to the survey results, what are the 3-5 most relevant resources (e.g., land, labor) that are required to use the innovation?	What 3-5 social dimensions (e.g., wealth status, education, religion) are most influential in impacting access to each of these resources?	Does gender intersect with these social dimensions to impact access to these resources? (yes, no, maybe)
Land; Financial resources; Agriculture inputs; Technical skills/knowledge	Land ownership; Wealth status; Education; Gender	Yes

Section 2. Potential Negative impacts for intended users and non-users

What are the 3-5 most significant potential negative impacts for intended users and individuals directly interacting with the user, according to the survey results?	What social dimensions (e.g., wealth status, education, religion) are most influential in determining who may experience each of these impacts?	Does gender intersect with these social dimensions to influence these negative impacts? (yes, no, maybe
Increase economic risk; Unemployment/reduced demand for labor; Less autonomy or decision making	Land ownership; Wealth status; Education; Gender; Marital Status	Yes

Section 3. Potential Negative community impacts of wide-scale adoption

What are the 3-5 most significant impacts for those in a community where the innovation is introduced, according to the survey results?	What social dimensions (e.g., wealth status, education, religion) are most influential in determining who in the community may experience each of these impacts?	Does gender intersect with these social dimensions to influence these negative impacts? (yes, no, maybe)
A shift in the community or household power dynamics (example, market control, influence over resources)	Land ownership; Wealth status; Education; Location	Yes

Stage 3a: Identifying Intersectional Groups

Based on the Stage 2 Worksheet, come to a conensus with your team on the three most relevant social dimensions your team needs to focus on moving forward. Write each social dimension in the column on the left, then discuss and complete the following columns.

PRIORITY DIMENSIONS			PRIORITY INTERSECTIONS
What are the 3 most relevant social dimensions that we need to take into account when scaling the innovation?	**What group within each social dimension may not be able to benefit, or may be likely to experience negative impacts?**	**Does gender intersect with these social groups to amplify the negative impacts a person may experience?**	**Which intersectional groups are most vulnerable to experiencing negative impacts? (i.e, Landless widow, uneducated young woman, migrant man, etc.)**
Relevant Social Dimension 1 Wealth Status	Low income	Yes	Intersectional Group 1 Low income women
Relevant Social Dimension 2 Education	Rural/low-educated	Yes	Intersectional Group 2 Rural, low-educated women
Relevant Social Dimension 3 Land Ownership	Landless individuals / laborers	Yes	Intersectional Group 3 Young landless men and women

Stage 3b: Understanding the Implications of Intersectionality

Using the intersectional groups identified in the Stage 3a Worksheet, complete the following as a team. Note that these discussions should be grounded within your own context. If your team is having difficulty answering these questions, it may be beneficial to consult a trained facilitator or other gender/social specialist, or conduct further background research.

	HOW will this intersectional group benefit or not benefit from the innovation? What negative impacts might they experience?	**WHY will this intersectional group either not benefit or experience negative impacts? (i.e., what is driving their experiences?)**
Intersectional Group 1 Low Income Women	• Possible reduced drudgery and time burden if the machine is accessible; less reliance on hired labor • Exclusion from purchasing decisions; inability to pay upfront fees; may not be able to compete with others who can adopt the technology	Low capital, limited control of household finances, and restricted mobility to attend trainings. Norms restricting women's ability to operate machinery. Seeder is marketed toward male dominated cash crops.
Intersectional Group 2 Rural, low-educated women	Difficulty in accessing and understanding how to use and maintain the technology with confidence	May be excluded if trainings rely on technical language or assume prior mechanization experience. Norms restricting women's ability to operate machinery. Seeder is marketed toward male dominated cash crops. Limited mobility to obtain replacement parts.
Intersectional Group 3 Young, landless men and women	If landlords adopt the technology, landless laborers may lose wage labor opportunities from manual planting; youth may be further displaced from agricultural opportunities	Landowners controlling technology decisions and access. May benefit only if the technology creates new market opportunities rather than reinforcing landlord control

Stage 4: Mitigating Negative Consequences for Vulnerable Intersectional Groups

With your team, complete the following Worksheet to create an inclusive Innovation Package for each of your identified Vulnerable Instersectional Groups. Some changes and activities will likely be shared across groups. Be sure to reference your Stage 1 Scaling Strategy.

What bottlenecks need to be addressed to mitigate negative impacts?	What needs to be changed in the training plan?	How should communication strategies and media use be changed?	What other mitigating activities (i.e. complementary innovations) are needed?	What new partnerships do we need to establish?
(low income women) Accessibility, Financial constraints	Compensation and child-care during trainings; Provide women-only or mixed-gender-friendly training spaces	Highlight women as operators in promotional materials	Rental hubs with flexible payment options; Group-based ownership models; uses for women-controlled crops	Women's groups, microfinance institutions; seed suppliers
(rural, low-educated women) Accessibility, Technical knowledge, Mobility	Transport to trainings; local languages; pictoral manuals and training videos; hands on demonstrations	More radio and local-language messaging; Use SMS with voice notes for low literacy users.	Manual/training on use for women-controlled crops; Local repair and spare-parts availability	Women extension agents; seed suppliers
(young, landless men and women) Potential job loss / displacement	Training for youth mechanics/repair people	Highlight women as operators in promotional materials	Establish youth-run rental/hire and repair services. Hire youth for data collection.	Young community leaders and agro-dealers

Stage 5: Integrating GenderUp into your project management

With your team, discuss what actions will be taken to integrate the changes determined in your new, inclusive Scaling Strategy using the following Worksheet. This can be an ongoing discussion and should be revisited and revised throughout implementation. Please note, each intersectional group's Innovation Package may require its own workplan.

	Adapted training plan	Adapted communication strategies and media use	Mitigating activities and complementary	New partnerships
What can we do to achieve this? (i.e., collect data, connect with other stakeholders, etc.)	Budget for transport to trainings and childcare. Add a training and manual for machine maintenance	Assess which media channels are trusted by women using KIIs	Women farmer focus groups and user testing with relevant crops seeds. Establish youth led rental model	Contact women's groups and local seed suppliers Contact finance institutions Identify young leaders
Who should act? (i.e., who on the project team, which partner, is it out of your influence?)	Project coordinator will coordinate transport. Manager will produce new material.	Communications team	Manager and engineer	Coordinator
What is our timeline for implementing these new activities / adjustments?	Before the first set of trainings.	One month before the first set of trainings	3 months	Within one month
What indicators and tools are relevant to capturing our scaling process? How can these be used in monitoring and evaluation?	Recording who participates in field demos Regular feedback loops with at-risk groups	Assess how training participants learned of the training by sex and age. Disaggregated rental and training data	Tracking changes in labor time, decision-making, and yields Youth participation	Seed availiability and market opportunities for women-focused crops
What impact will this have on our budget? Do we need to seek out additional funding?	Within budget scope	Within budget scope	May need to adjust expected reach to more intentional communities	Withn budget scope

Appendix C. Case Studies - Extended

The following case studies illustrate three applications and impacts of the GenderUp methodology across diverse agricultural innovations and contexts. Each example highlights how teams engaged with the tool to uncover equity gaps, strengthen inclusion strategies, and redesign their scaling plans to better reach, benefit, empower, and transform marginalized groups. These experiences offer valuable insights into the practical relevance and adaptability of GenderUp, setting the foundation for understanding how the tool has since evolved and been used more broadly. The subsequent section builds on these examples by presenting findings from a recent survey capturing user experiences, learning outcomes, and emerging patterns of impact from GenderUp's continued application.

Case Study 1: Enhancing Inclusive Digital Innovation Design in Malawi
In Malawi, the GenderUp methodology was applied in its originally intended form - a trained facilitator guiding a single innovation team through a series of structured virtual workshops. The trained facilitator out of the Feed the Future Innovation Lab for Markets, Risk, and Resiliency, worked with a team of seven participants, including researchers, IT developers, and program managers, out of the University of Lilongwe. The team was developing a horticultural marketplace app aiming to help smallholder producers, particularly women, overcome barriers to transporting and selling produce in local markets.

The team participated in two, three-hour virtual GenderUp workshops via Zoom. The sessions were structured around reflection, discussion, and co-creation, following the five stage GenderUp framework. Through this process, participants identified three key groups likely to be excluded from their current scaling and uptake strategy:

- Individuals with limited education,
- Young and elderly people, and
- Those with low levels of income.

By exploring the intersection of these factors with gender, the team recognized how women, especially young women, face compounded challenges, such as limited access to mobile phones and financial resources, reducing their ability to benefit from the innovation. The process led to a shift in team perspective from a purely technical scaling approach to a human-centered, inclusive scaling strategy. The team moved from identifying barriers to designing actionable mitigation strategies to ensure equitable access and use of the app. These included:

- Adjusting training schedules to align with women's daily responsibilities;
- Using drama-based communication to reach users with low literacy levels; and
- Building partnerships with private sector actors to improve affordability and with farmer organizations to extend reach to marginalized groups.

The Malawi case demonstrates how GenderUp functions effectively as a guided, reflective, and actionable framework for teams designing and scaling agricultural innovations. One workshop participant stated that GenderUp provided them with "actionable strategies to include people from different social groups in using our innovation…[and] think deeply about how important small inclusion activities are in making our innovation more scalable in the future." Through facilitated dialogue, it enables innovation teams to anticipate equity challenges, adapt their strategies, and enhance the inclusivity and social impact of their work.

Read more here: Gregerson K., Kilwinger F., Schut M., McGuire E., Rietveld A., and Leeuwis C. (January 2024). Gender-Up Date: Progress towards outcomes.

Case Study 2: Using GenderUp for Conservation Agriculture in Zimbabwe (CGIAR)
In Zimbabwe, the CGIAR Initiative on Diversification in East and Southern Africa – Ukama Ustawi applied the GenderUp methodology, convening stakeholders from government institutions, FAO, USAID, and CGIAR centers. Participants were engaged in scaling Conservation Agriculture (CA) innovations and had previously taken part in a CGIAR Scaling Readiness workshop focused on mechanized CA. The GenderUp workshop guided participants through an exploration of how scaling mechanized CA might affect different groups, both users and non-users. Using GenderUp's participatory and reflective approach, the team identified three groups likely to be missing out on benefits from current scaling efforts: Young and elderly individuals, people with disabilities, and Farmers in remote geographic areas.

Through guided discussions, participants realized that scaling mechanized CA could unintentionally increase labor burdens for certain groups, particularly the elderly, who might struggle to acquire the technical skills required to operate machinery. They also anticipated social and community-level impacts, noting that greater mechanization could shift social cohesion by promoting individualism and reducing traditional systems of mutual labor exchange among farmers. This critical reflection revealed that innovation scaling influences not only those who adopt new technologies but also those who do not—shaping broader social dynamics and potentially altering collective norms and relationships within rural communities.

The Zimbabwe adaptation illustrates the flexibility of the GenderUp methodology and its ability to complement other scaling tools like Scaling Readiness. The process not only strengthened participants' analytical capacity but also expanded their view of scaling - from a technical endeavor to a social process with far-reaching impacts.

Case Study 3: Inclusive Scaling Across Diverse Innovations in Zambia (CGIAR)
In Zambia, the CGIAR Initiative on Diversification in East and Southern Africa - Ukama Ustawi applied the GenderUp methodology across four diverse innovations: conservation agriculture, improved cowpea seeds, aquaculture, and the Go Digital Farm platform.

- The innovation teams, including researchers, development partners, farmer representatives, and private sector actors, identified excluded user groups and examined the potential negative social and economic impacts of scaling. Across all four innovation areas, participants recognized the following as groups most likely to be excluded or negatively affected without intentional mitigation measures including young women, people with disabilities, and low-income farmers.

Participants identified critical, innovation-specific constraints that needed to be addressed within their different scaling strategies. Teams proposed solutions such as:

- Childcare and transport support for women and persons with disabilities, financial literacy training, and two-wheel tractor services to reduce drudgery
- Complementary innovations to strengthen scaling equity, such as loan facilities, contract farming, cold storage, feed formulation, and integrated aquaculture systems
- Partnerships with microfinance institutions, cooperatives, seed companies, extension services, and community leadership structures

The Zambia experience illustrates how GenderUp can reframe scaling as a socially reflective and adaptive process with diverse teams, and a diverse set of innovations. By guiding teams to identify who benefits, who is excluded, and how inequities can be addressed through targeted design and partnerships, the methodology helped institutionalize inclusion within technical scaling plans.

Read more here: Enokenwa Baa, O.; Nortje, K.; Mabele, T. 2023. Responsible gender scaling strategies for mechanized conservation agriculture innovation packages in Zimbabwe. Highlights from the GenderUp Workshop, Harare, Zimbabwe, 8 August 2023. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Initiative on Diversification in East and Southern Africa. 23p.

Liani, M.L., Ewell, H., Akamandisa, M.V. & Lungu, M. (2024). Report of the training workshop on responsible and inclusive scaling of agricultural innovations using the GenderUp Methodology with scaling partners in Zambia. Ukama Ustawi: Diversification for Resilient Agribusiness Ecosystems in East and Southern Africa. Ibadan, Nigeria: IITA, (53 p.).

Appendix D. Optional Activity: Practice Identifying Unintended Consequences

Instructions: Please review the case study authored by Bues, Andrea, and Theesfeld, Insa (2012), titled "Water Grabbing and the Role of Power: Shifting Water Governance in the Light of Agricultural Foreign Direct Investment." Examine the "Scaling Strategy" outlined in the subsequent pages and annotate any potential unintended negative consequences you foresee. Finally, compare your findings with the results presented on the last page to identify any insights you may have overlooked.

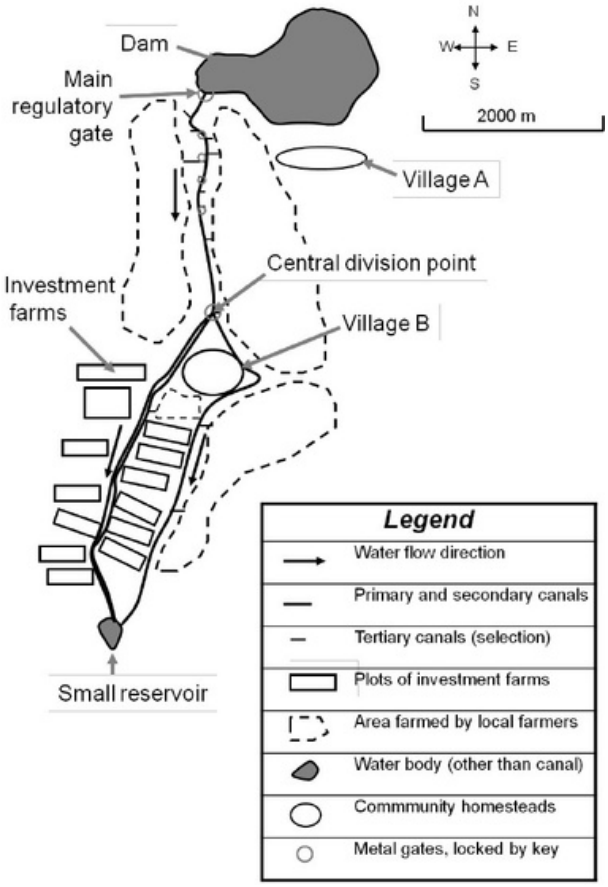
Innovation: Foreign Direct Investment Irrigation Scheme in Ethiopia

Background: Ethiopia is working to boost agricultural growth by improving the use of its irrigation systems, many of which are underused and managed informally by local communities. To unlock this potential, the government is partnering with foreign and domestic investors to introduce large-scale, commercial farming into existing irrigation areas.

These investors bring capital, technology, and modern practices that aim to improve productivity, create jobs, and connect rural farmers to markets. In this model, smallholders may benefit through training, employment, or partnerships, while government agencies help coordinate land and water access.

Before the Intervention: Local, Farmer-Led Governance

- Water was managed by local user groups, often organized by social ties and geography.
- Groups democratically elected committees and created their own rules.
- Women and marginalized smallholders participated in these systems, which had relatively low barriers to access (membership, small fees, collective cleaning duties).
- Water access was communal and not overly contested.



The new approach is seen as a pathway to increasing productivity, creating rural jobs, and linking farmers to global markets. However, it also introduces a fundamental shift in how resources like land and water are controlled and distributed, reshaping who gets access to irrigation, how decisions are made, and what kinds of crops are grown.

Intervention Project Plans

- Public-Private Irrigation Model: The government grants land and irrigation water access within communal schemes to large-scale private investors, aiming to modernize agriculture and boost productivity.
- Embedded in Smallholder Systems: Investments are introduced into existing irrigation schemes traditionally managed by local communities using informal rules and rotational water-sharing practices
- New Governance Arrangements: Resource management shifts toward formal, centralized systems, often coordinated between government agencies and investors—with limited clarity on smallholder roles
- Land and Water Reallocation: Portions of land and guaranteed water supply are allocated to investor farms, which may change how remaining resources are distributed among local users
- Commercial Production Focus: Investors prioritize export-oriented or high-value horticultural crops, requiring reliable infrastructure, seasonal labor, and high water inputs.
- Promises of Local Benefit: Project designs often include commitments to provide jobs, agricultural training, or outgrower contracts to surrounding communities—though mechanisms for this are not always specified
- Vague Entry Points for Women & Marginalized Groups: Project documents emphasize productivity and investment but may not explicitly address how women, poorer farmers, or landless households will access resources or influence decisions.

Stage 1a: Defining innovation and scaling ambition

What is the core innovation you aim to scale?	Foreign Direct Investment Scheme to modernize existing irrigation systems
Describe what problem the innovation is solving.	Many irrigation schemes are inefficiently managed, leading to suboptimal crop yields
What is the purpose of scaling innovation?	Modernize agricultural production and increase water-use efficiency through improved infrastructure
Who will use the innovation?	Foreign and domestic commercial farms; smallholder farmers ; Local governments, extension agents, water user associations
Describe what social change the innovation is intended to achieve.	It aims to turn farming into a more reliable source of income, move from subsistence to commercial farming, and bring better jobs and infrastructure to rural areas
Are there other innovations or changes that are necessary for your innovation to scale successfully?	Formation of a new irrigation association; Training for local farmers; Better roads and storage facilities; Fees and collective cleaning duties
Describe the context (social, geographical, agricultural) where the innovation will be launched.	Rural communities with communal irrigation governance and existing infrastructure with suitability for high-value horticultural crops
Describe what your innovation will replace.	It replaces small-scale, traditional irrigation systems managed by local, informal committees with more formal systems and centralized gate access
At what scale do you want to have an impact (community, regional, national)?	Regional and national levels, targeting multiple river basins and irrigation corridors
What is the desired timeline for this impact to become a reality?	1–2 years: Try it in a few places 3–5 years: Expand to more areas 5–10 years: Make it a nationwide approach to farming

After Implementation: Shift Toward Investor-Controlled Governance
Foreign horticultural farms entered the area and began using large amounts of water, intensifying scarcity.
A new irrigation association was formed with disproportionate power held by investors and government-backed actors.
Local farmers, including women and vulnerable groups, had less influence in decision-making.

Rules and sanctions changed dramatically:

- Water fees increased
- Sanctions rose sharply for local farmers but not for investment farms
- A rotational access system was introduced that favored investor flexibility
- Water guards and gate access were centralized, reducing informal/local control

Structural Disadvantages for Women and Marginalized Farmers

- Shift from diverse subsistence crops to monoculture for export reduced local food availability.
- Women, often responsible for household nutrition, struggled to access food and income.
- Poorer households and those without formal land titles were often left out of planning
- Indigenous or historically marginalized ethnic groups faced disproportionate displacement or reduced water access.
- Women, already constrained by time, mobility, and land access, were least able to adapt to the new scheme.
- Investor farms often hired men for paid labor, sidelining women economically.
- Women's limited representation in formal governance meant they had no voice in new water allocation decisions.
- Access to clean drinking water was reduced—especially for Village B, where many used canal water for drinking.
- Farmers had limited educational background and lacked the bureaucratic literacy and networks that investors used to navigate or shape the system.
- Bribery and influence became more common, a system in which marginalized actors had little means to compete.

Despite the appearance of inclusion via "user representation," decision-making remained skewed toward investor interests, enabled by government support and positional power.

Bues, Andrea & Theesfeld, Insa. (2012). Water Grabbing and the Role of Power: Shifting Water Governance in the Light of Agricultural Foreign Direct Investment. Water Alternatives. 5.

Appendix E. GESI Tools and Approaches

Tools/ Framework	Outcomes/Use	Strengths	Gaps & Limitations	Relevant aspects of the tools for informing inclusive scaling
Women's Empowerment in Agriculture Index (WEAI)	Measures empowerment & gender parity across 5 domains; linked to nutrition, poverty, food security outcomes	Standardized & comparable; strong evidence base; policy traction; adaptable modules (A-WEAI, Pro-WEAI)	Resource-intensive (30–40 min interviews; high survey costs); requires trained enumerators; comparability vs. context trade-off; limited on collective agency	WEAI supports problem framing & equity objectives by providing a needs assessment rooted in empowerment domains. It also enhances context & social differentiation through disaggregated analysis of sex, age, and location. As a quantitative baseline, it contributes to evidence, data & end-user economics while its indicators strengthen risk management, monitoring & adaptive learning by tracking empowerment outcomes over time.
Pro-WEAI	Project-level empowerment measurement; detects changes over 2–5 year cycles; adds Intimate Partner Violence (IPV), self-efficacy, work balance, mobility	Rigorous project-level sensitivity; modularity (nutrition, markets, health add-ons); strong theoretical base; actionable diagnostics	Resource- and time-intensive; adaptation risks; complexity of modules (e.g. IPV); evolving evidence base	Pro-WEAI builds on WEAI to advance problem framing & equity objectives, especially in projects that address self-efficacy, mobility, and intra-household dynamics. It deepens context & social differentiation by capturing subgroup differences and provides rigorous evidence, data & end-user economics through project-specific baselines. Its indicators also serve in risk management, monitoring & adaptive learning, enabling MEL systems to track empowerment change during interventions.
RBET (Reach–Benefit–Empower–Transform)	Provides a typology to frame the depth of gender outcomes (reach - transform); encourages a structural change focus	Simple, communicable; clarifies ambition; adaptable; useful for planning & donor dialogue	Not a measurement tool; can be applied superficially; "Transform" outcomes are complex to measure	RBET sharpens problem framing and equity objectives in scaling. It informs context analysis and social differentiation by making visible who is excluded from scaling interventions and why. By connecting ambition levels to concrete outcomes, RBET strengthens risk management, monitoring, and adaptive learning, ensuring that measurement is directly tied to program goals and the realities of diverse communities. In doing so, RBET makes responsible scaling more intentional, inclusive, and accountable.

Tools/ Framework	Outcomes/Use	Strengths	Gaps & Limitations	Relevant aspects of the tools for informing inclusive scaling
Gender Lens (Analysis & Investing) GLI)	Systematic gender analysis & integration across program cycles; informs design, budgets, Monitoring Evaluation Learning (MEL); investment criteria for GLI	Strong policy traction; cross-sector flexibility; actionable design guidance; mandatory in many donor contexts	Variable quality (risk of box-ticking); not a metric; requires qualified analysts; under-resourced MEL follow-through	Gender Lens analysis strengthens problem framing & equity objectives by ensuring that gender considerations are systematically integrated into design and diagnostics. It provides insights for context & social differentiation by identifying intersectional barriers. In addition, it supports evidence, data & end-user economics by embedding sex-disaggregated data and inclusive analysis into project monitoring.
GenderUp	Facilitator-led process to codesign inclusive scaling strategies; anticipates trade-offs; creates actionable inclusion steps	Practical & participatory; integrates with Innovation Packages and Scaling Readiness (IPSR); complements metrics; growing facilitator network	Dependent on skilled facilitation; evidence base still emerging; not a metric; quality varies across teams	GenderUp reframes problem framing & equity objectives by explicitly asking who benefits, who is excluded, and what trade-offs exist in scaling. It advances context & social differentiation through diagnostics that generate concrete inclusion actions across user groups. By convening workshops, it also strengthens power, legitimacy & inclusive partnerships through co-design of responsibilities. GenderUp supports risk management, monitoring & adaptive learning with regular inclusion check-ins that ensure scaling remains equitable.
Gender Lens Investing (GLI)	ncorporates gender into investment decisions, risk analysis, and product design; expands capital for women-led/serving enterprises	High institutional uptake in finance; scalable across markets; actionable investment criteria; links capital with impact	Application uneven in agriculture & rural dev.; requires tailored metrics for smallholders; dependent on investor buy-in	GLI strengthens problem framing & equity objectives by linking capital flows to women's empowerment, while context & social differentiation is addressed through due diligence on barriers facing women- and youth-led enterprises. It supports evidence, data & end-user economics by embedding gender metrics into investment decisions and shapes the enabling environment by pushing DFIs, impact investors, and SMEs to adopt gender-responsive financing models.

Tools/ Framework	Outcomes/Use	Strengths	Gaps & Limitations	Relevant aspects of the tools for informing inclusive scaling
Gender Action Learning Systems (GALS)	Visual diagrams and participatory workshops are used to ensure projects consider the protection of women's rights against any form of discrimination, women's rights over property, and participation in decision-making processes	Positive behavioural and social change; livelihood improvement, community empowerment	Lack of ownership and ambition, insufficient integration into core programs, and leadership constraints	GALS promotes enabling environment & innovation packaging & mitigating activities by bundling complementary services and policy supports while protecting women's rights. It also enhances risk management, monitoring & adaptive learning through participatory processes, peer sharing, and community-led ownership, ensuring adaptive scaling that avoids harm.
GESI Scorecards	Identify gaps, capacity building, and develop a baseline for future endeavors in GESI integration in programs and operations	Fostering accountability, encouraging learning, and promoting a more inclusive transformation of power relations and outcomes	Reliance on data quality and availability; potential for narrow focus on specific groups; difficulty in measuring intangible outcomes, and insufficient resources for implementation	GESI Scorecards can be combined with Gender-responsive MEL Systems to help in assessing whether high-level GESI ambition can be delivered at the activity level in the responsible scaling process
G+ tools for gender-responsive breeding	Increased participation, equitable access to resources and benefits, empowerment and capacity building, gender-responsive technologies and innovations, policy influence and transformation, evidence-based interventions, strengthened social networks and support systems.	G+ tools provide a framework for gender-responsible breeding, consideration of the trait preferences of men and women	Heavy reliance on expert judgement; tradeoffs in trait preferences by men and women; need for more robust interdisciplinary evidence; and validation of information supporting the application of the tool and informing policy.	The sets of G+ tools (i.e. G+ Product Profile, G+ Customer Profile, and G+ Product Profile Query Tool) can be combined with the Standard Operating Procedure to help breeders develop socially inclusive varieties and support responsible scaling efforts.

Tools/ Framework	Outcomes/Use	Strengths	Gaps & Limitations	Relevant aspects of the tools for informing inclusive scaling
Farmer business school with climate change and gender perspective: Learning and monitoring guide	The GESI tool was used by CIP to facilitate action learning on agricultural value chains among farmer groups.	Development of an entrepreneurial mindset by farmers; improved business and financial management skills; and fostering collaboration among value chain actors.	Implementing farmer business schools approach with a climate change and gender perspective can be challenging in male-dominated segments of value chains, and in contexts where entrenched gender norms and social structures hamper equal participation and benefit sharing among men and women in the value chains.	The GESI tool can be combined with other agricultural interventions and services and used for responsible scaling by improving entrepreneurial and business mindsets among farmers, promoting sustainable practices, and shifting from supply-driven to demand-driven approaches.

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