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TECHNICAL BRIEF

# Responsible Scaling for Impact: Inclusion and Power in Food, Land and Water Systems

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December 2025



## Acknowledgments

This work was undertaken as part of the CGIAR Scaling for Impact (S4I) program, CGIAR Multifunctional Landscapes Program, and the CGIAR Accelerator for Gender Equality and Inclusion. We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund ([www.cgiar.org/funders](http://www.cgiar.org/funders)).

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.

This brief was written by authors from the International Water Management Institute, Responsible Innovations, KIT-Institute, Alliance Bioversity-CIAT, Wageningen University and Research, University of Bonn, Deutsche Gesellschaft für Internationale Zusammenarbeit.

The authors acknowledge the limited use of AI – Co-Pilot in developing some of the visuals for this brief.

### 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-portfolio-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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## Suggested Citation

McGuire, E.; Mutiso, A.; Valencia, E.; Ewell, H.; Enokenwa Baa, O.; Alame, D. S.; Paez-Valencia, A. M.; Newton, J.; Rietveld, A.; Nortje, Karen; Keller-Bischoff, L.; Yami, M. 2025. *Responsible scaling for impact: inclusion and power in food, land and water systems*. Colombo, Sri Lanka: International Water Management Institute (IWMI). CGIAR Scaling for Impact program, CGIAR Multifunctional Landscapes Program, CGIAR Accelerator for Gender Equality and Inclusion. 8p.

*How can agricultural research for development (AR4D) move beyond pilots to deliver sustainable and equitable impact at scale? Despite abundant innovations, benefits remain uneven, especially for women, youth, and marginalized producers facing structural barriers to assets, markets, and climate information. AR4D must co-create context-specific innovation bundles (technologies, services, finance, and policy), rigorously de-risk adoption, and strengthen inclusive market and institutional pathways. The challenge is to align incentives across public, private, and civic actors so that scaling improves livelihoods and resilience without reinforcing inequalities.*

The CGIAR Scaling for Impact (S4I) Program is designed to support a “whole-of-CGIAR” and transdisciplinary approach to addressing major global trends in food, land, and water systems. By integrating cutting-edge research with practical scaling strategies, the program aims to amplify CGIAR’s impact. It focuses on accelerating the uptake of a wide range of promising innovations—technological, social, policy-related, and procedural—developed by CGIAR and its partners.

This brief is targeted towards scaling partners and innovation teams who design pathways for innovation adoption and uptake. A key component of the S4I program is the *Enabling Environment Lab*, which focuses on identifying and addressing systemic barriers that prevent innovations—developed within the CGIAR network and other initiatives – from scaling effectively.

It supports essential market systems and institutional capacities, while also confronting normative and social barriers that hinder inclusive scaling. AoW-3 emphasizes that innovation can only drive meaningful social transformation when it is inclusive and responsive—especially for marginalized groups whose needs are often overlooked. Creating equitable enabling environments is central to this mission.

Coordinated by the CGIAR Scaling for Impact (S4I) Program, GESI researchers at IWMI, a group of scaling scientists, gender specialists, and innovation researchers and practitioners, met in Cape Town, South Africa, to reflect on how agricultural research for development (AR4D) can achieve greater and more equitable impact. The discussion centered on a key question: how can innovation systems become more responsible and effective in the ways they scale and create?



The program is grounded in the recognition that many past failures in scaling innovations stem from limited transdisciplinary collaboration, inadequate integration into governance processes, limited inclusion, and poor responsiveness to emerging challenges or opportunities. To address these gaps, science must evolve rapidly, generating scalable innovations that are resilient in the face of global complex challenges and tomorrow’s socio-political and agroecological climate.

Scaling innovations effectively and equitably, therefore, demands a careful understanding of anticipated potential (unintended) positive and negative impacts, inclusion of diverse social groups, reflexivity about institutional and disciplinary biases, and responsiveness to emerging risks and opportunities. The concept of responsible scaling offers a framework for doing so. Responsible scaling recognizes that scaling is never neutral: it is a social and political process that shapes who benefits, who participates, and whose knowledge is valued.

## Why This Matters

Across agricultural research and innovation systems, scaling has gained traction as an important mechanism to generate impact through research and innovation. Scaling has centered around technological advances, for example, new plant varieties, vaccines, or pasteurization processes - with an underlying assumption that a sound technological solution will produce widespread positive externalities, benefiting communities as use increases across space and time. Nevertheless, experience has shown that innovations can sometimes lead to unforeseen outcomes that may disadvantage or negatively affect the very

groups they are meant to support, including marginalized or vulnerable populations. Moreover, top-down approaches to knowledge and technology design are not always readily accepted by communities, as they often fail to reflect local socio-cultural realities and knowledge systems that shape how innovations are understood, valued, and used.

A growing number of scientists and practitioners now recognize that to scale effectively and to achieve social and transformative goals, one must consider social contexts. Innovation and scaling research practices interact with norms and regulations, market structures, governance arrangements, and power relations. Without attention to these dynamics, scaling can reinforce inequality even as it expands innovation use if it is not carefully designed.

Responsible scaling, defining it as responsive, inclusive, anticipatory, and reflexive, is therefore essential for achieving the Sustainable Development Goals (SDGs). It demands that innovation processes—from project design to evaluation—explicitly consider social differentiation and environmental limits. It requires planning ahead, working collaboratively, and thinking in a more interdisciplinary manner. This is especially relevant in the current moment, as organizations and donors emphasize “impact at scale.” The challenge is not simply to scale *more*, but to scale *better*, with legitimacy, inclusion, and long-term benefit.

## The Political and Institutional Dimensions

While technical integration of tools is essential, growing conversations emphasize that scaling is ultimately shaped by power relations within organizations and funding systems. Decisions about what to scale and where are influenced by leadership cultures, disciplinary hierarchies, and donor incentives.

Agricultural research institutions remain heavily dominated by biophysical sciences, where quantitative measures of success—such as yield, adoption rate, or cost-benefit ratio—carry more weight than qualitative assessments or mixed methods approaches focused on equity or empowerment. Social and gender scientists, by contrast, often occupy peripheral roles in program design and resource allocation. This imbalance limits the ability of innovation systems to design for equitable positive impacts across social landscapes and anticipate unintended outcomes.

To make responsible scaling operational, organizations are expected to confront both institutional and political challenges:

- **Leadership commitment and accountability.** Senior managers need incentives to prioritize inclusion and reflexivity as markers of success, not as optional extras.
- **Flexible funding mechanisms.** Multi-year resources that allow iterative learning and adaptation are vital for embedding responsibility.
- **Cross-disciplinary collaboration.** Teams that integrate social, economic, political, and technical expertise are more likely to design scalable innovations that respond to real-world complexity.
- **Cultural change.** Recognizing and valuing diverse forms of evidence—from participatory data to lived experience—requires deliberate efforts to shift organizational norms.

## Practical Pathways: Integrating Responsibility and Inclusivity into Scaling Outcomes

Researchers have identified (through a co-creation process) a series of practical recommendations for embedding responsible and inclusive scaling within agricultural innovation systems. These reflect lessons from ongoing collaborations among gender and scaling experts, and from tools developed through global research networks.

**1. Strengthen and align existing frameworks.** Many programs specifically within the CGIAR already use methods such as the Innovation Package and Scaling Readiness ([IPSR](#)) approach, [GenderUp](#) for inclusive scaling, the [Scaling Scan](#) to assess system ‘ingredients’, and employ empowerment metrics like [WEAI/Pro-WEAI](#). Responsible scaling encourages harmonizing these instruments so that inclusion, equity, and social risk assessment become standard components of scaling readiness. GESI-related indicators can be embedded within monitoring and performance systems to track progress consistently and allow for adaptive management to emerging conditions.

**2. Develop a Responsible Scaling Index.** To make responsibility measurable, Researchers are proposing creating an index that captures

inclusivity and empowerment within innovation pipelines. Such a framework would complement readiness or adoption metrics by focusing on social and institutional conditions that enable or constrain scaling. The index could support accountability, facilitate dialogue with funders, and guide organizational learning.

**3. Build communities of practice linking scaling and inclusion.** A stronger connection between scaling scientists and gender specialists can accelerate systemic change. Establishing communities of practice - across universities, research centers, and development partners - would enable peer exchange, joint training, and shared use of tools. This collaboration should extend to early-career researchers to ensure continuity and innovation in responsible scaling approaches.

**4. Embed responsibility from the start.** Responsible scaling must begin at project conception, not after technologies and processes are developed. Integrating gender-responsive design and social inclusion frameworks early in the research cycle improves both effectiveness and legitimacy. Tools such as [GenderUp](#), [Reach. Benefit. Empower and Transform \(RBET\) Framework](#) and participatory approaches like [Gender Action Learning System \(GALS\)](#) can help teams anticipate social effects and create adaptive feedback loops throughout implementation.

**5. Build socio-technical bundles through local partnerships.** To enable responsible innovation, institutional frameworks should foster co-creation spaces where diverse actors - from local communities to global partners - can contribute their knowledge, skills, resources, and interests. Building socio-technical bundles through these partnerships means deliberately pairing technological innovations with social innovations that respond to farmers' and communities' diverse conditions, needs, and aspirations. Such bundling ensures that scaling processes are not only technically sound but also socially grounded, context-responsive, and sustainable.



Workshop participants in Cape Town where the learning and suggestions for this responsible scaling brief were generated. Source: From authors

## From Technical to Transformative Scaling Outcomes

The discussions in Cape Town underscored that responsible scaling is not only about integrating gender or environmental safeguards; it is about transforming how impact itself is understood. Instead of equating success with replication or numerical reach, and productivity measures, responsible scaling reframes success as the ability to foster equitable transformation within systems.

This transformation involves:

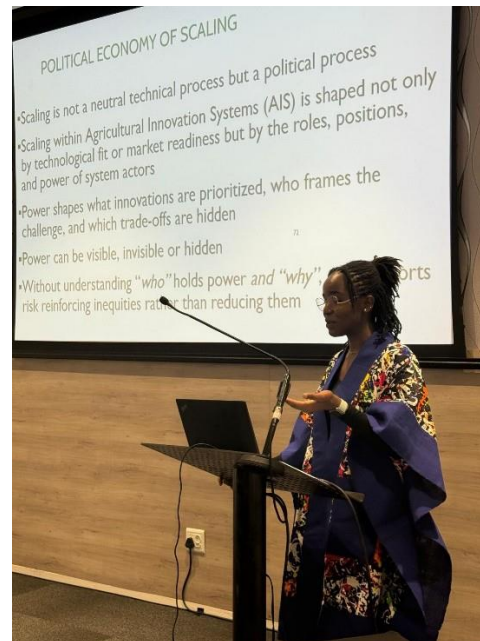
- **Re-examining metrics of success.** Counting adopters is insufficient; measuring empowerment, legitimacy, and local ownership provides a fuller picture of impact.
- **Centering inclusion in innovation design.** Human-centered and participatory approaches should inform how technologies and policies are developed.
- **Linking research and governance.** Scaling outcomes depend on institutional environments—policy incentives, market access, land rights—that extend beyond the research domain.
- **Encouraging reflexivity.** Researchers and funders must be willing to ask uncomfortable questions: Who benefits? Who decides? What assumptions guide our interventions?



## Toward Systemic Change in Agricultural Innovation

Responsible innovation and scaling require more than new tools - it calls for systemic change in how agricultural innovation is conceived and governed. Embedding responsibility means aligning three interrelated dimensions:

1. **Institutional:** integrate responsible scaling principles into core organizational strategies, funding structures, and performance systems, supporting the leadership strategies to strengthen the resilience and adaptability of institutions.
2. **Operational:** equip teams with harmonized methodologies, shared learning platforms, and adaptive monitoring systems to implement changes as part of their normal processes.
3. **Cultural:** cultivate leadership, habits, and research cultures that reward collaboration, critical reflection, and equity outcomes.



Dorcas Sanginga (Bonn University) presenting on “Political Economy of Scaling.” Source: From authors

## Learning Forward: Providing Tailored Support to S4I Areas of Work

The reflections from Cape Town demonstrate a growing consensus that scaling cannot be separated from the social, economic, and political systems that shape it. Agricultural innovation and scaling systems that ignore these realities risk reproducing inequality rather than reducing it. Responsible scaling offers a pathway to rethink impact as systems transformation—aligning scientific excellence with inclusion, responsiveness, and justice.

As agricultural research institutions, funders, governments, and many others work to accelerate progress toward the SDGs, responsible scaling provides a practical and ethical compass. It encourages innovation that not only spreads widely but also uplifts fairly.

Going forward, S4I is committed to scaling responsibly and through critical reflection, embedding dimensions of anticipation, inclusion, responsiveness, and reflexivity in its assessment of enabling environments, viable scaling pathways, and evaluation methods.



#### Disclaimer

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