



*Smallholder farmers aggregating tomatoes in plastic crates to reduce postharvest losses in northern Nigeria.
Credit: Bunkasa and IITA*

CGIAR Research Initiative on **Rethinking Food Markets**

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The Artificial Intelligence (AI) software ChatGPT was used to support the editing of parts of this report, specifically to improve clarity, grammar, and style. ChatGPT was not used to generate the content of the report. All edits made with AI assistance were reviewed and validated by the authors to ensure accuracy, coherence, and alignment with the original intent.

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CGIAR Technical Reporting 2024

CGIAR Technical Reporting has been developed in alignment with [CGIAR's Technical Reporting Arrangement](#). This annual report ("Type 1" Report) constitutes part of the broader CGIAR Technical Report. Each CGIAR Research Initiative/Impact Platform/Science Group Project (SGP) submits an annual "Type 1" Report, which provides assurance on progress towards end of Initiative/Impact Platform/SGP outcomes.

As 2024 marks the final year of this CGIAR Portfolio and the 2022-24 business cycle, this Type 1 Report takes a dual approach to its analysis and reporting. Alongside highlighting key achievements for 2024, the report also provides a cumulative overview of the 2022-24 business cycle, where relevant. This perspective captures the evolution of efforts over the three-year period. By presenting both annual and multi-year insights, the report underscores the cumulative impact of CGIAR's work and sets the stage for the transition to the 2025-30 Portfolio.

The 2024 CGIAR Technical Report comprises:

- **Type 1 Initiative, Impact Platform, and SGP Reports:** These annual reports present progress towards end of Initiative/Impact Platform/SGP outcomes and provide quality-assured results accessible via the [CGIAR Results Dashboard](#).
- **Type 3 CGIAR Portfolio Practice Change Report:** This report provides insights into CGIAR's progress in Performance Management and Project Coordination.
- **Portfolio Narrative:** Drawing on the Type 1 and Type 3 reports, as well as data from the CGIAR Results Dashboard, the Portfolio Narrative synthesizes insights to provide an overall view of Portfolio coherence. It highlights synergies, partnerships, country and regional engagement, and collective progress.
- **Type 2 CGIAR Contributions to Impact in Agrifood Systems: evidence and learnings from 2022 to 2024:** This report offers a high-level summary of CGIAR's contributions to its impact targets and Science Group outcomes, aligned with the Sustainable Development Goals (SDGs), for the three-year business cycle.

The Portfolio Narrative informs the 2024 CGIAR Annual Report – a comprehensive summary of the organization's collective achievements, impacts, and strategic outlook.

Elements of the Type 2 report are integrated into the [CGIAR Flagship Report](#), released in April 2025 at [CGIAR Science Week](#). The Flagship Report synthesizes CGIAR research in an accessible format designed specifically to provide policy- and decision-makers at national, regional, and global levels with the evidence they require to formulate, develop, and negotiate evidence-based policies and investments.

The diagram below illustrates these relationships.

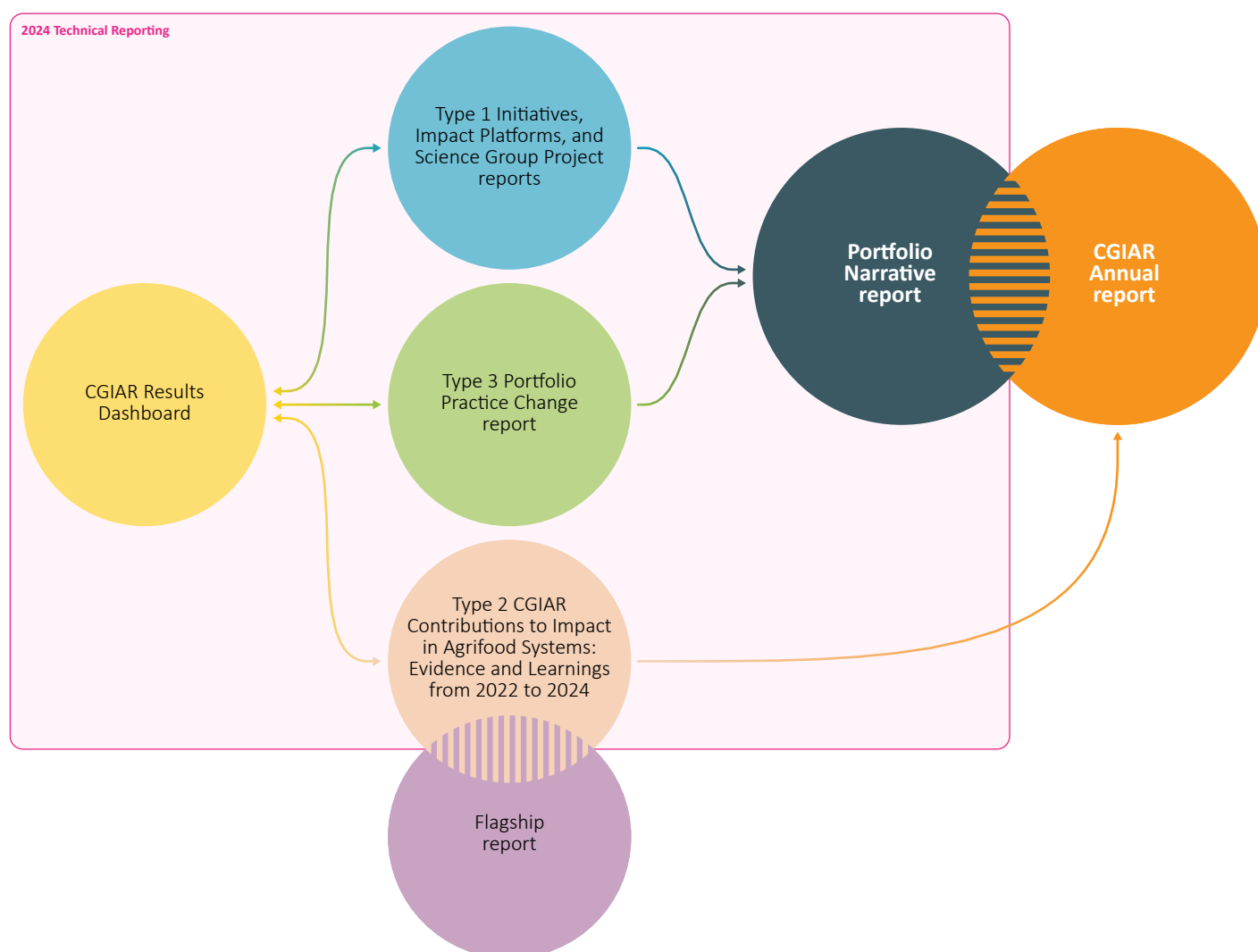


Figure 1. CGIAR's 2024 Technical Reporting components and their integration with other CGIAR reporting products.

Section 1: Fact sheet, executive summary and budget

Initiative name	Rethinking Food Markets and Value Chains for Inclusion and Sustainability
Initiative short name	Rethinking Food Markets
Initiative Lead	Rob Vos (R.Vos@cgiar.org)
Initiative Co-lead	Christine Chege (C.Chege@cgiar.org)
Science Group	Systems Transformation
Start – end date	01 January 2022 – 31 December 2024
Geographic scope	Regions Central and West Asia and North Africa · East and Southern Africa · Latin America and the Caribbean · South Asia · West and Central Africa Countries Bangladesh · Ethiopia · Guatemala · Honduras · Nigeria · Uganda · Uzbekistan
OECD DAC Climate marker adaptation score ¹	Score 0: Not targeted The activity does not target the climate mitigation, adaptation, and climate policy objectives of CGIAR as put forward in its strategy.
OECD DAC Climate marker mitigation score ¹	Score 1: Significant The activity contributes in a significant way to any of the three CGIAR climate-related strategy objectives—namely, climate mitigation, climate adaptation, and climate policy, even though it is not the principal focus of the activity.
OECD DAC Gender equity marker score ²	Score 1A: Gender accommodative/aware Gender equality is an objective but not the main one. The Initiative/project includes at least two explicit gender-specific outputs, and (adequate) funding and resources are available. Data and indicators are disaggregated by gender and analyzed to explain potential gender variations and inequalities.
Website link	https://www.cgiar.org/initiative/29-rethinking-food-markets-and-value-chains-for-inclusion-and-sustainability/

¹ The Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) markers refer to the OECD DAC [Rio Markers for Climate](#) and the [gender equality policy marker](#). For climate adaptation and mitigation, scores are: 0 = Not targeted; 1 = Significant; and 2 = Principal.

² The CGIAR Gender Impact Platform has adapted the OECD gender marker, splitting the 1 score into 1A and 1B. For gender equality, scores are: 0 = Not targeted; 1A = Gender accommodative/aware; 1B = Gender responsive; and 2 = Principal.

These scores are derived from [Initiative proposals](#), and refer to the score given to the Initiative overall based on their proposal.

EXECUTIVE SUMMARY

A large portion of the global poor rely on the food system for their income and employment, including through growing participation in off-farm food sector jobs. However, despite advancements in agricultural productivity and innovations in technology and institutions throughout value chains, many workers in the agrifood sector and their families continue to live in poverty and are unable to afford a nutritious diet. Women and youth in particular face challenges accessing resources and receiving decent pay. Further, the agrifood sector's current operations are leaving a major environmental footprint, contributing to climate change and depletion of natural resources. To address these major food system challenges, the **CGIAR Research Initiative on Rethinking Food Markets** generated evidence on the innovations, incentives, and policies most effective for steering food market functioning toward the creation of equitable income, employment, and business opportunities along agrifood value chains for smallholders, small and medium enterprises (SMEs), and workers, especially for women and youth, while also reducing the food sector's environmental footprint.

During the 2022–2024 period, Initiative researchers worked with local researchers and food sector stakeholders in six focus countries to provide new knowledge on combinations of innovations and policies to leverage sustainable growth and income opportunities in agrifood supply chains and support services (such as logistics and finance). Over that three-year period, the Initiative generated 163 outputs (at the country, regional, and global levels) and 213 key results, including 137 knowledge products, 24 innovation designs, and 32 capacity-sharing activities. In terms of outcome achievements, the Initiative reported one policy change, one instance of post-pilot innovation uptake, and four other successes categorized as “other outcomes.”

In collaboration with local stakeholders, the innovations developed by the Initiative were pilot-tested in seven agrifood value chain contexts in five of the six target countries. These innovations comprised programs to raise product quality, improve market information, and/or organize farmers in the export-oriented value chains for shrimp in Bangladesh, sesame oil seeds in Ethiopia, and coffee in Honduras; bundles of process innovations related to inclusive business models, product quality upgrading, improved market information, and/or cold chain development for the domestic market-oriented value chains for maize and beans in Honduras, fruits and vegetables in Nigeria, and dairy in Uganda; and inclusive business models for e-finance and logistics supporting food value chain development in Bangladesh, Nigeria, and Uganda. To promote broader knowledge sharing, stakeholder engagement, and scaling preparedness, the Initiative launched a knowledge platform (KISM) in early 2023. KISM served as a hub for knowledge exchange between researchers and stakeholders. Between 2022 and 2024, 13 webinars were conducted that reached more than 1,000 participants, including researchers, private sector stakeholders, and policymakers.

The Initiative achieved all but one of the targets established by the envisaged End of Initiative outcomes (EOIOs):

- Under EOIO 1, out of the 10,000 people targeted to benefit from the piloted Work Package (WP) 1 innovations, the project directly reached more than 20,000 beneficiaries belonging to 4,360 households of smallholders and agrifood SME workers in Honduras, Ethiopia, and Bangladesh.
- Under EOIO 2, out of the 10,000 people targeted to benefit from the domestic value chain innovations (WP2), the Initiative benefited 42,835 smallholders and agrifood SMEs in Honduras, Nigeria, and Uganda, thus reaching more than 214,000 people when including other members of beneficiary households. In addition, more than 30,000 rural households directly benefited from higher-quality and cheaper fruits and vegetable supplies in Nigeria and more than 100,000 households benefited from better quality milk in southwest Uganda due to the innovations introduced by the Initiative.
- Under EOIO 3, the project aimed to benefit at least 3,000 workers in agrifood jobs in micro, small, and medium enterprises (MSMEs) in Bangladesh, Nigeria, and Uganda. Overall, 2,968 individuals directly benefited from logistics and finance innovations, while indirect beneficiaries, comprised of both beneficiary household members and recipients of products offered by our partners, numbered at least 12,000.
- EOIO 4 targeted 8,000 beneficiary smallholder farmers and agrifood SMEs through scaled innovations piloted in WPs 1–3. The Initiative reached more than 50,000 farm households and agrifood SME beneficiaries through piloted value chain innovations. In addition, in each of the selected countries, stakeholder and scaling-preparedness workshops were organized to showcase the effectiveness of the innovations and discuss both preparedness and constraints toward scaling value chain innovations.
- The target of reaching 45 percent women and 20 percent youth as either direct or indirect beneficiaries under EOIOs 1–3 was achieved overall based on the demographic composition of the beneficiary populations.

	2022 ▼	2023 ▼	2024 ▼
PROPOSAL BUDGET ▶	\$9.21M	\$9.99M	\$10.80M
APPROVED BUDGET ¹ ▶	\$5.64M	\$7.40M ²	\$7.75M ²

¹ The approved budget amounts correspond to the figures available for public access through the [Financing Plan dashboard](#).

² These amounts include carry-over and commitments.

Section 2: Progress towards End of Initiative outcomes

Initiative-level theory of change diagram

This is a simple, linear, and static representation of a complex, non-linear, and dynamic reality. Feedback loops and connections between this Initiative and other Initiatives’ theories of change are excluded for clarity.

CHALLENGE STATEMENT

- The food sector constitutes about one-fifth of the global economy and is the world's largest source of income and employment. Most of the world's poor and vulnerable people depend on it for their livelihoods. Agricultural productivity has steadily grown, and technological and institutional innovations have proliferated within agrifood markets and value chains, helping to reduce poverty and food insecurity worldwide.
- Despite these critical contributions, the structure and operation of food markets have negative impacts. Much of the rural population employed within the agrifood sector remains poor and food- and nutrition-insecure, and evidence suggests that at least 3 billion people globally, including both the rural and urban poor, cannot afford nutritious diets. These populations have been unable to benefit from expanding food markets. More food processing has brought food diversity and convenience to consumers but also worrisome increases in the consumption of unhealthy foods. The sector's over- and misuse of natural resources has also degraded the environment and exacerbated the climate crisis and biodiversity loss. Many of these failures are rooted in markets hindered by multiple deficiencies in infrastructure, equipment, and standards; incentives that do not foster sustainability, nutrition, or inclusiveness; concentrated market power; and weak value-chain integration.
- There are also enormous opportunities, however. Food markets and value chains are undergoing rapid changes, including in developing countries, as urbanization accelerates, technologies proliferate, policies aim to address market failures, and dietary patterns shift. New products, modern distribution systems, and digital technologies continue to transform supply chains. These changes represent unique and timely opportunities for more gainful employment and business activity for disadvantaged agrifood actors, including smallholders and workers in small- and medium-sized enterprises (SMEs), especially women and youth. More appropriate incentive structures and repurposed agricultural policy support can encourage adopting sustainable practices at the farm level and across food value chains. Food standards for quality, safety, environmental sustainability, and fair trade can protect consumers and the environment and make smallholders and agrifood SMEs more competitive.

RESEARCH QUESTIONS

The key challenge is how to address these multiple constraints and develop value chains that efficiently deliver more nutritious and safe foods to retailers and consumers, while generating decent livelihoods for farmers and food sector workers—including women and vulnerable groups—and reducing the carbon footprint of agriculture. No single approach, innovation, or policy will suffice. Improving the ability of food systems to reduce poverty, improve nutrition, promote gender equality, and sustainably use resources will require combining technical and organizational innovations with enabling market incentives, institutional and regulatory frameworks, and public policy, all within specific value chains and food markets. Therefore, the Rethinking Food Markets Initiative aims to provide evidence on the types of bundled innovations, incentive structures, and policies that are most effective for creating more equitable sharing of income and employment opportunities in growing food markets while reducing the food sector's environmental footprint. It will seek to identify promising and adaptable innovations for improved vertical coordination, inclusive contracting, food quality, sustainability certification, inclusive digital platforms, and more. The Initiative will pilot and assess opportunities and tradeoffs associated with bringing these bundled innovations to scale to make a sustained impact on development and the environment.

SPHERE OF CONTROL

WORK PACKAGES

WORK PACKAGE 1

Making globally integrated value chains inclusive, efficient, and environmentally sustainable.

WORK PACKAGE 2

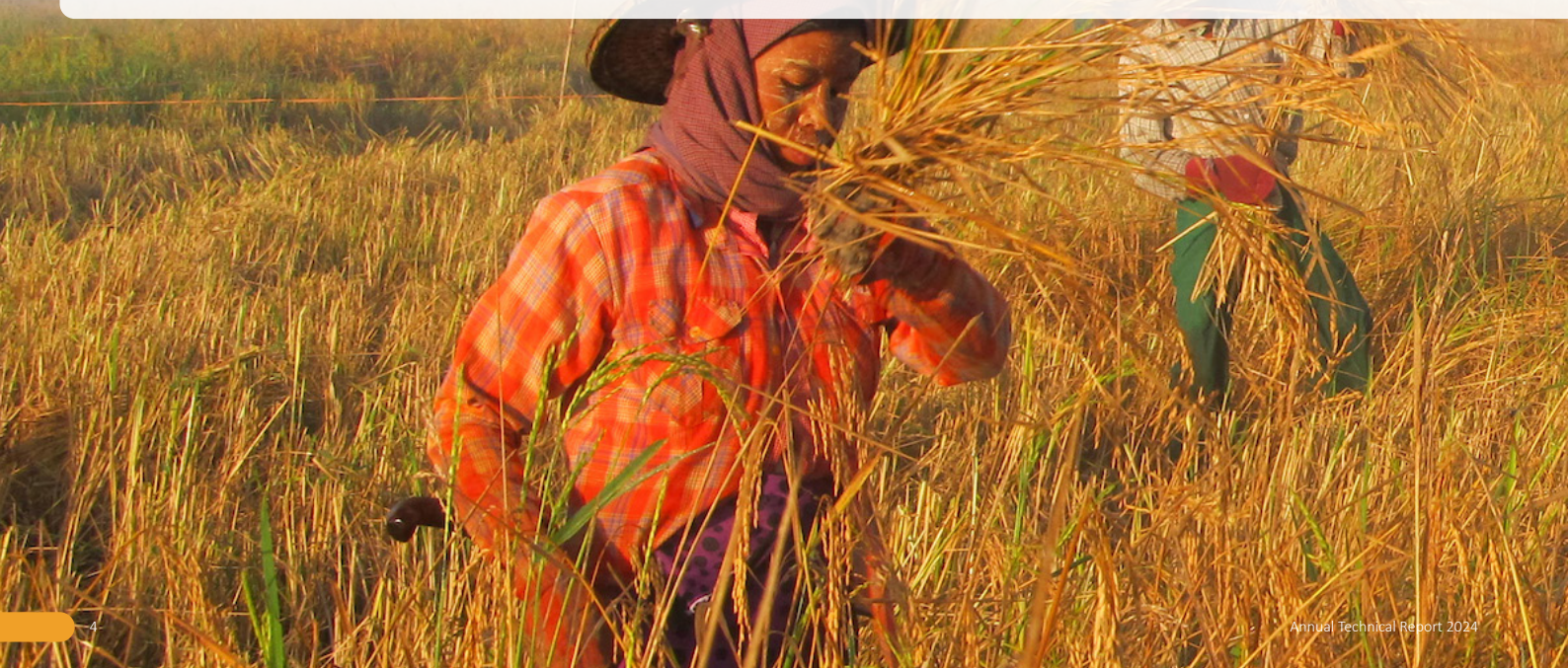
Innovation for inclusive and sustainable growth of domestic food value chains.

WORK PACKAGE 3

Innovations and policy design for development for cross-value chain services to leverage new employment and income opportunities.

WORK PACKAGE 4

Knowledge tools for policy coherence and market reform for inclusive and sustainable food market transformation.



SPHERE OF INFLUENCE

END-OF-INITIATIVE OUTCOMES

END-OF-INITIATIVE OUTCOME 1

1 ▶ Farmers and workers in agrifood sectors benefited from innovations on vertical coordination, inclusive value chain contracting, export product quality and sustainability certification.

END-OF-INITIATIVE OUTCOME 2

2 ▶ The piloted innovations in domestic market value chains benefited income, employment, farmers, workers and agrifood enterprises.

END-OF-INITIATIVE OUTCOME 3

3 ▶ Digital logistics and financial services benefited workers in agrifood micro, small and medium enterprises.

END-OF-INITIATIVE OUTCOME 4

4 ▶ Improved policies and scaling preparedness benefited smallholder farms and agrifood small and medium enterprises.

ACTION AREA OUTCOMES

SYSTEMS TRANSFORMATION

- 1 ▶ 1 • Due to CGIAR involvement, private sector actors invest in business practices or models that have the potential to improve livelihoods, climate resilience, promote sustainable and inclusive food systems, and boost consumption of healthy diets, especially among nutritionally vulnerable population groups.
- 2 ▶ 2 • Implementation partners (e.g. NARES, NGOs, private companies) actively support dissemination, uptake, and implementation of CGIAR innovations.
- 3 ▶ 3 • Research institutions, government analytical units, and scaling partners in the Global South have improved knowledge, skills, access to data, capacity to develop tools, innovations, and undertake research to support transformation of food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate objectives.
- 4 ▶ 4 • CGIAR partners develop and scale innovations that contribute to the empowerment of women and other social groups in food, land, and water systems.
- 5 ▶ 5 • Global and regional institutions, such as funding agencies, international organizations, and coordinating bodies use CGIAR research evidence in the development of strategies, policies, and investments to drive sustainable transformation of food, land, and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.
- 6 ▶ 6 • National and sub-national government agencies use CGIAR research results to design or implement strategies, policies and programs which have the potential to transform food, land and water systems contributing to livelihood, inclusion, nutrition, environmental and climate resilience objectives.
- 7 ▶ 7 • National and local multi-stakeholder platforms are strengthened to become more effective and sustainable, addressing development trade-offs and generating strategies for effective food, land, and water systems transformation.

SPHERE OF INTEREST

IMPACT AREAS

NUTRITION, HEALTH & FOOD SECURITY

- 1 ▶ • End hunger for all and enable affordable health diets for the 3 billion people who do not currently have access to safe and nutritious food.
- 2 ▶
- 3 ▶
- 4 ▶
- 5 ▶
- 6 ▶
- 7 ▶

POVERTY REDUCTION, LIVELIHOODS & JOBS

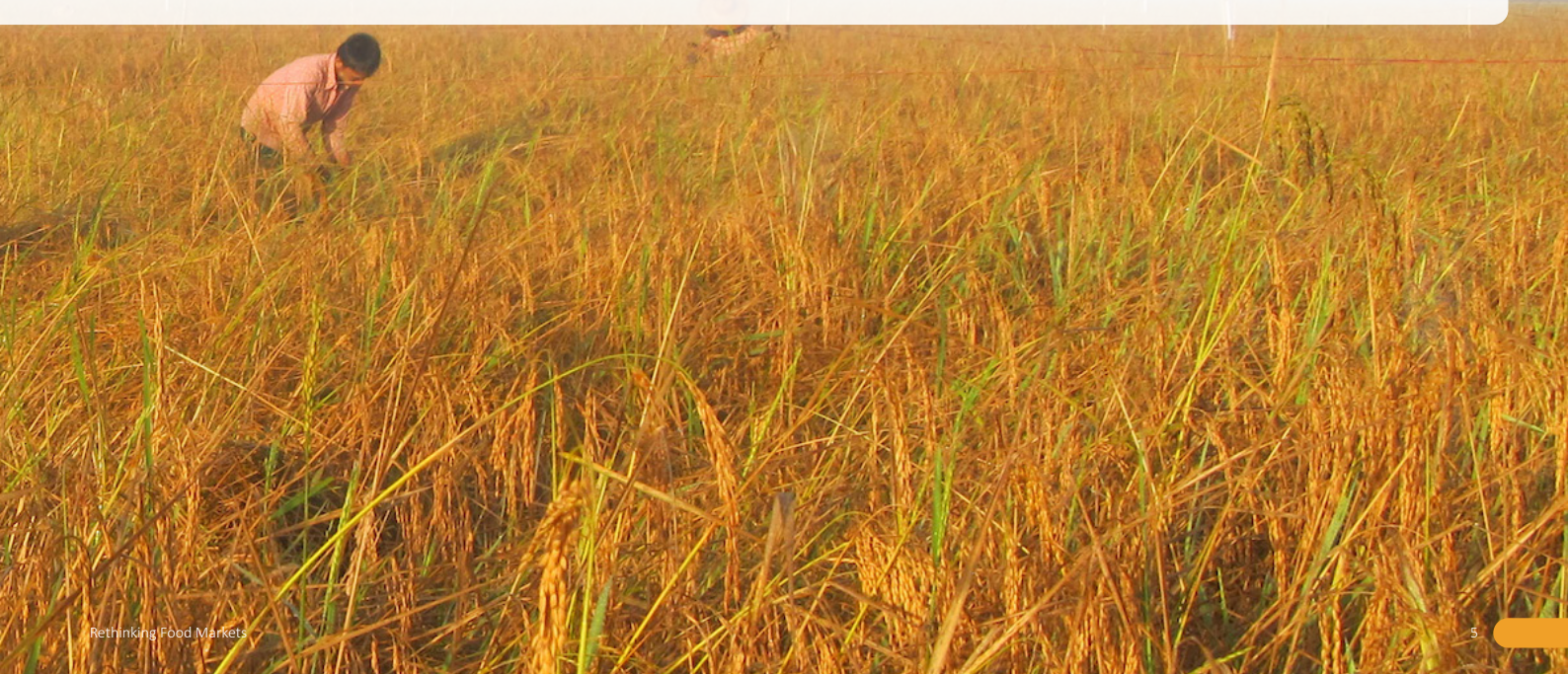
- 1 ▶ • Lift at least 500 million people living in rural areas above the extreme poverty line of US \$1.90 per day (2011 PPP).
- 2 ▶
- 3 ▶
- 4 ▶
- 5 ▶
- 6 ▶
- 7 ▶

GENDER EQUALITY, YOUTH & SOCIAL INCLUSION

- 1 ▶ • Offer rewardable opportunities to 267 million young people who are not in employment, education, or training.
- 2 ▶
- 3 ▶
- 4 ▶
- 5 ▶ • Close the gender gap in rights to economic resources on, access to ownership of, and control over land and natural resources, for more than 500 million women who work in food, land, and water systems.
- 6 ▶
- 7 ▶

CLIMATE ADAPTATION & MITIGATION

- 1 ▶ • Equip 500 million small-scale producers to be more resilient to climate shocks, with climate adaptation solutions available through national innovation systems.
- 2 ▶
- 3 ▶
- 4 ▶
- 5 ▶
- 6 ▶
- 7 ▶





Training cooperative staff on bean quality testing in Danlí, El Paraíso, Honduras.
Credit: Mirian Colindres

Summary of progress against the theory of change

Food systems make up about one-sixth of the global economy and form the world's largest source of employment. Many of the world's poor depend on the food system for their livelihoods, in terms of both income and employment and increasingly in off-farm food sector activities. However, despite increasing agricultural productivity and technological and institutional innovations, most of the rural and urban workers employed in the agrifood sector and their families remain poor and cannot afford the cost of a nutritious diet. Many women and youth in particular face hurdles in accessing resources and receiving decent pay in the food system. Further, the agrifood sector's current operations are leaving a major environmental footprint, contributing to climate change and depletion of natural resources.

To address these major food system challenges, the **Rethinking Food Markets Initiative** generated evidence on the innovations, incentives, and policies most effective for steering food market functioning toward the creation of equitable income, employment, and business opportunities along agrifood value chains for smallholders, SMEs, and workers, and especially for women and youth, while also reducing the food sector's environmental footprint.

Initiative researchers worked with local researchers, governments, and food sector stakeholders in six focus countries to provide new knowledge on combinations of innovations and policies to leverage sustainable growth and income opportunities in agrifood supply chains and support services (such as logistics and finance).

During the 2022–2024 period, the Initiative generated 137 knowledge products, 24 innovation designs, and 32 capacity-sharing activities. The innovations were fielded and pilot-tested in seven agrifood value chain contexts in five of the target countries, comprising the shrimp export value chain in Bangladesh, sesame oil seed value chain in Ethiopia, coffee, maize, and bean value chains in Honduras, fruits and vegetable value chains in Nigeria, and dairy value chains in Uganda, as well as e-finance and logistics innovations supporting food value chain development in Bangladesh, Nigeria, and Uganda. To promote broader knowledge sharing, stakeholder engagement, and scaling preparedness, the Initiative established a KISM and a related Community of Practice. In terms of outcomes, the Initiative saw pilot-level uptake of all 24 innovations, providing direct income, employment, and food security gains for 23,500 smallholders and SME agrifood businesses and more than 115,000 associated household members across the five target countries and value chains. Preliminary findings of causal impact evaluations of all value chain innovations provide evidence of these benefits. Estimation of the precise magnitudes of these benefits across four of the five CGIAR Impact Areas (Nutrition, Health, and Food Security; Poverty Reduction, Livelihoods, and Jobs; Gender Equality, Youth, and Social Inclusion; and Climate Adaptation and Mitigation) will be completed in the first semester of 2025, on the basis of which the full direct, pilot-level impacts and potential impacts of scaled innovations will be known. The results as currently measurable suggest achievement of all targeted EOIOs.



Collecting milk from farmers at a milk collection center in southwestern milk shed, Uganda.

Credit: Bjorn Van Campenhout

Progress against End of Initiative Outcomes

This infographic provides a concise summary of the Initiative’s progress toward achieving its Theory of Change End-of-Initiative outcomes for the 2022-2024 period. By drawing on reported results, it offers a comprehensive synthesis of progress made against the established outcome targets, highlighting the Initiative’s overall impact and key achievements at the conclusion of this three-year cycle.

EOIO 1

In households of farmers and of the self-employed and workers in agrifood sectors, 10,000 people benefit from innovations in **export-oriented** food value chains.



Piloted innovations:

- Business clustering
- App-based market information
- Collective action in marketing
- Improved product quality measurement and sustainability standard

Beneficiaries:

- 4,360 smallholders and agrifood SMEs in export-oriented value chains in Honduras (coffee), Ethiopia (sesame), and Bangladesh (shrimp)
- More than 20,000 household members, including 40% women and 20% youth amongst them

Benefits:

- Improved income and employment opportunities, reduced poverty and food insecurity
- Less GHG emissions (coffee in Honduras)

In households of farmers and of the self-employed and workers in agrifood sectors, 10,000 people (at least 45 percent women and 20 percent youth) benefit from piloted Work Package 1 innovations in global value chains in three geographies.

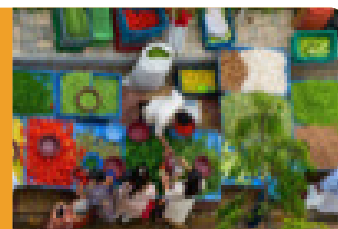
The Initiative’s piloted innovations included combinations of clustering of farmers, traders, and other food sector operators, app-based market information, collective action in marketing, and improved methods for measuring and incentivizing product quality. Combined, these innovations benefited 4,360 smallholders and agrifood SMEs in Honduras, Ethiopia, and Bangladesh. The number of beneficiaries rises to more than 20,000 individuals when including other members of beneficiary households. While not yet directly measured, the targets for women and youth were likely to have been achieved given the demographic composition of the target population. Data on the magnitude of actual welfare, employment, and sustainability gains were collected in endline surveys for each of the three country cases in 2024, the analyses of which will be completed in early 2025.

EOIO 1 linked results:

- [Sustainability policy for small farmers: The challenge](#)
- [An evaluation of three interventions in shrimp value chains in Bangladesh](#)
- [Market diversification to increase the demand for and value of Bangladeshi shrimp](#)
- [Cointegration analysis of sesame prices in Ethiopian commodity exchange warehouses](#)
- [Vínculos entre el Reglamento de productos libres de Deforestación de la Unión Europea \(EUDR\) y las herramientas de trazabilidad: Una exploración desde el sector cafetalero de Honduras \[Linkages between the EU Regulation on Deforestation-free Products and the tools for traceability: An exploration from the coffee sector of Honduras\]](#)
- [Digital sesame information systems: IPSR Innovation Profile](#)
- [Integrated coffee sales standard: IPSR Innovation Profile](#)
- [Clustering shrimp farming to promote traceability and certification: IPSR Innovation Profile](#)
- [Stakeholder workshop insights: Driving sustainability in the coffee value chain through traceability systems](#)
- [Transformando mercados de intermediación privada en la cadena de valor del café: Resultados y aprendizajes de una intervención en Honduras \[Transforming private intermediation markets in the value chain for coffee: Results and lessons from an intervention in Honduras\]](#)
- [Tipologías de mujeres en cadenas de valor para orientar acciones de equidad de género: El caso de Volcafe en El Paraíso \[Typology of women in the value chain to guide action for gender equality: The case of Volcafe in El Paraíso\]](#)
- [Scoping study of the Honduran coffee supply chain: Challenges and opportunities](#)
- [Perspectivas del taller DIASCA con actores del sector café en Honduras: Impulsando la sostenibilidad en la cadena de valor del café a través de sistemas de trazabilidad](#)
- [Puntos en común sobre una infraestructura digital de interés pública para el cumplimiento del EUDR en la cadena de valor del café](#)
- [Perspectivas actuales y futuras: Innovaciones para la eficiencia e inclusión en la cadena del café de Honduras](#)

EOIO 2

In households of farmers and of the self-employed and workers in agrifood sectors, 10,000 people benefit from innovations in **domestic market-oriented** food value chains.



Piloted innovations:

- Product upgrading (improved seeds) for fruits and vegetables and beans
- Solar-powered cooled storage and transportation and drying equipment
- Improved food quality measurement
- Inclusive value chain contracting

Beneficiaries:

- 42,835 smallholders and agrifood SMEs in domestic market value chains in Honduras (beans), Nigeria (fruits & vegetables), and Uganda (milk)
- More than 214,000 household members, including 40% women and 20% youth amongst them

Benefits:

- Improved income and employment opportunities, reduced poverty and food insecurity
- Reduced food loss and waste and less GHG emissions (F&V sector in Nigeria)
- Higher trade margins for producers and lower consumer prices

In households of farmers and of the self-employed and workers in agrifood sectors, 10,000 people (at least 45 percent women and 20 percent youth) benefit from piloted Work Package 2 innovations in domestic market value chains in three geographies.

The Initiative achieved this EOIO. Innovations were introduced that benefit 42,835 smallholders and agrifood SMEs in Honduras, Nigeria, and Uganda, thus reaching more than 214,000 people when including other members of beneficiary households. In addition, more than 30,000 rural households were directly benefiting from higher-quality and cheaper fruits and vegetable supplies in Nigeria and upwards of 100,000 households benefited from better quality milk in southwest Uganda, thanks to the innovations introduced by the Initiative. The targets for women and youth as either direct or indirect beneficiaries were also likely achieved based on the demographic composition of the beneficiary populations. Impact estimates of treatment effects from the different interventions will be calculated as part of the final analysis in 2025.

EOIO 2 linked results:

- [Postharvest packaging and marketing innovation adoption in Nigeria: The case of plastic crate](#)
- [Does labelling differentiate products and create price premiums? The case of tomatoes from northeast Nigeria](#)
- [Peer-to-peer learning on vegetable production and implications for value chain development in Nigeria](#)
- [Impacts of cool transportation in Nigeria: Midpoint analysis](#)
- [Cool transportation in Nigeria: Intervention, baseline and randomized controlled trial](#)
- [Cooling technologies and long-term efficiency improvement of horticulture market agents: Panel data evidence from solar-powered cold-storage intervention in Nigeria](#)
- [Solar dryer technology to process and preserve agricultural products in Nigeria](#)
- [Quality seeds in Nigeria: IPSR Innovation Profile](#)
- [Plastic crate rental services for fruit and vegetable farmers and retailers in Nigeria](#)
- [Stakeholder workshop on innovation scaling preparedness and strategy in Nigeria](#)
- [Video campaign for Ugandan dairy farmers to increase milk quality: IPSR Innovation Profile](#)
- [Technology to test milk quality mid-stream for Ugandan smallholder farmers: IPSR Innovation Profile](#)
- [Online platform providing data on milk](#)
- [Opportunities for innovation and intervention in Uganda's dairy value chain: A scoping report](#)
- [Quality upgrading in dairy value chains: Mixed methods evidence from southwestern Uganda](#)
- [Milk quality monitoring platform: Collecting, analyzing quality and price data in Milk Collection Centres for informed decision-making Uganda](#)
- [Installing simple quality monitoring devices paired with a data-collection application at milk collection centers in Uganda to differentiate milk qualities and encourage smallholder dairy farmers to supply better quality milk](#)
- [Extension and sensitization campaign for smallholder dairy farmers that explains various strategies for increasing the compositional quality of milk, such as choice of animal breed, pasture management, and supplementary feeding](#)
- [Perspectivas sobre el frijol común en Honduras: Tendencias en la producción, distribución y consumo](#)
- [Perspectivas sobre el frijol común en Guatemala: Tendencias en la producción, distribución y consumo](#)
- [Talleres para la escalabilidad de innovaciones en el sector agroalimentario de Honduras](#)
- [On-farm bean grain quality testing for smallholders in Honduras](#)

Progress against End of Initiative Outcomes

This infographic provides a concise summary of the Initiative’s progress toward achieving its Theory of Change End-of-Initiative outcomes for the 2022-2024 period. By drawing on reported results, it offers a comprehensive synthesis of progress made against the established outcome targets, highlighting the Initiative’s overall impact and key achievements at the conclusion of this three-year cycle.

EOIO 3

Innovations in digital technologies for **logistics and finance**, benefit at least 3,000 workers in agrifood MSME jobs in Bangladesh, Nigeria, and Uganda.



Piloted innovations:	Beneficiaries:	Benefits:
<ul style="list-style-type: none">• Profit sharing financing model targeted to women for livestock fattening• Cash top-up loans in input loan program• Information on digital agricultural services	<ul style="list-style-type: none">• 2,968 workers are direct beneficiaries in value chains in Bangladesh, Nigeria, and Uganda• Over 12,000 are indirect beneficiaries, through expansion of offers and household members of direct beneficiaries• Demographics suggest targets of 40% women and 20% youth are met among the indirect beneficiaries	<ul style="list-style-type: none">• Improved access to finance and quality inputs• Improved access to digital agricultural services• Evidence of improved productivity and income

Pilot innovations in digital technologies for logistics and finance benefit at least 3,000 workers in agrifood MSME jobs in Bangladesh, Nigeria, and Uganda. At least 45 percent of the pilot beneficiaries are women and 20 percent youth.

The Initiative achieved this EOIO. The innovations in WP3 brought about significant benefits for many workers across various case study settings. In Bangladesh, 210 recipients, 50 percent of whom were women, received financed livestock, directly improving their livelihoods. In Nigeria, 286 individuals, including 15 percent women, benefited from loans that provided much-needed financial support. Meanwhile, in Uganda, the EzyAgric digital services platform trained 513 individuals and engaged 191 agents, enhancing their skills and opportunities. Indirectly, the scale-up activities informed by these case studies extended WeGro financing in Bangladesh to an additional 1,768 recipients. This brought the total number of beneficiaries to 2,968, which is close to the EOIO target of 3,000. When considering the scale-up activities in Uganda and the indirect benefits to beneficiary household members, the impact was even more substantial, totaling at least 12,000. The average household size is 4.3 in Bangladesh, 10.9 in Nigeria, and 6.5 in Uganda, further amplifying the reach of these efforts. The gender-sensitive nature of the offers in the Bangladesh study and the demographic make-up of the population ensures that both gender and youth targets were met, highlighting the inclusive approach of these efforts. Overall, WP3’s innovations not only enriched the lives of the direct beneficiaries but also created a ripple effect, benefiting many more through extended family and community networks.

EOIO 3 linked results:

- [Direct and indirect beneficiaries from Rethinking Food Markets WP3 pilot projects](#)
- [Digital literacy training and awareness raise four-fold the uptake of bundled digital innovations in Uganda](#)
- [CGIAR research has informed WeGro to develop innovative and sustainable finance models in Bangladesh](#)
- [Determination of loan type among smallholders in Nigeria](#)

EOIO 4

Policymakers in six geographies have **changed policies to enable scaling of innovations** adopted by 8,000 smallholder farms and agrifood SMEs.



Piloted innovations:

- Knowledge Platform and Community of Practice for sharing best practices
- Agrifood data system and modeling framework to estimate potential for scaling of innovations and identify trade offs
- Research syntheses and guidelines

Direct beneficiaries:

- Over 50,000 smallholders and agrifood MSMEs in food value chains in Bangladesh, Ethiopia, Honduras, Nigeria, and Uganda
- Over 1,000 food sector stakeholders and policy makers in 5 countries informed about effectiveness and scalability of VC innovations

Benefits:

- Improved income and employment opportunities
- Improved policies in 1 country (Uganda)

Policymakers in six geographies change policies to enable scaling of innovations adopted by 8,000 smallholder farms and agrifood SMEs.

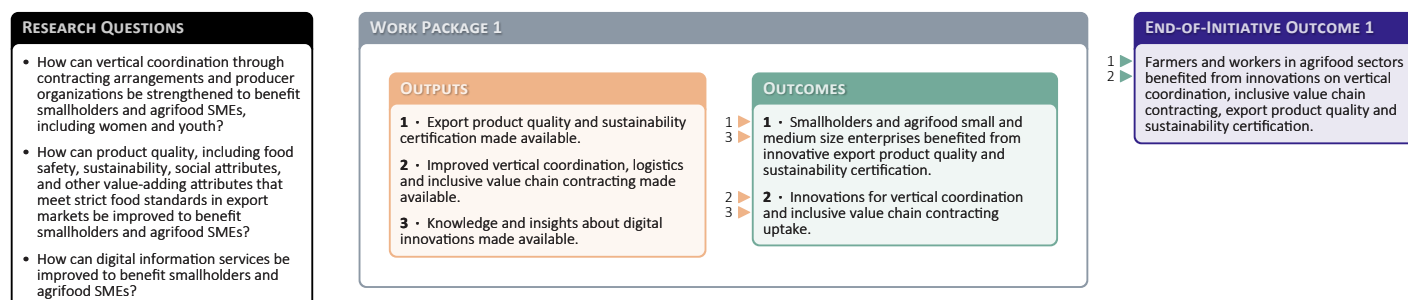
With the progress made toward providing benefits to smallholder farms and agrifood SMEs through the piloted innovations in WPs 1–3, the main target for EOIO 4 was met, reaching a total of more than 50,000 farm household and agrifood SME beneficiaries through piloted value chain innovations. In addition, in each of the selected countries, stakeholder and scaling-preparedness workshops were organized to showcase the effectiveness of the innovations and discuss both preparedness and constraints toward scaling the value chain innovations. The potential economy-wide impacts and potential trade-offs of scaled innovations were tested through model-based scenario analysis, providing directions for complementary policy support to incentivize scaling and fortify impacts in terms of employment and income improvements, poverty reduction, food security, and greenhouse gas (GHG) emission reductions. In the case of Uganda, the government committed to providing the proposed policy support to dairy farmers adopting the innovation for improved milk quality control. There is thus a solid basis to assume the benefits achieved can be sustained and scaled up, if these initiatives can get follow-through in further research and stakeholder dialogues in the new Science Programs.

EOIO 4 Linked results:

- [Innovation process tracing assessment: Methodological approach and guiding principles](#)
- [Monitoring, evaluation, learning and impact assessment and scaling preparedness and action \(MELIA&SPA\): A process-based framework](#)
- [A guideline for the profiling of innovation bundles](#)
- [AgIncentives policy indicators of Agrifood Market and Policy Analysis Models \(AMPAM\) to assess potential trade-offs associated with scaling interventions and innovations along food value chains](#)
- [Global and National Agrifood Market and Policy Analysis Models to support decision-makers in assessing value chain trade-offs](#)
- [Knowledge Platform to facilitate evidence-based decision-making of governments, businesses, farmers, and practitioners toward more Inclusive and Sustainable Food Markets and Value Chains \(KISM\)](#)
- [African domestic supply booms in value chains of fruits, vegetables, and animal products fueled by spontaneous clusters](#)
- [Emerging outsource agricultural services enable farmer adaptation in agrifood value chains: A product cycle perspective](#)
- [Agrifood system employment: Innovations, policies, and knowledge gaps](#)
- [AgIncentives policy indicators to support scenario analysis for assessing better outcomes for poverty, food security and climate resilience](#)
- [Stakeholder workshop on innovation scaling preparedness and strategy in Ethiopia](#)
- [Stakeholder workshop on innovation scaling preparedness and strategy in Honduras](#)
- [Stakeholder workshop insights: Driving sustainability in the coffee value chain through traceability system](#)
- [Stakeholder workshop on innovation scaling preparedness and strategy in Nigeria](#)
- [Stakeholder workshop on innovation scaling preparedness and strategy in Uganda](#)
- [Building impact at scale: Scaling up agrifood interventions from the Rethinking Food Markets Initiative](#)
- [Agrifood Market and Policy Analysis Models \(AMPAM\) to support decision-makers: IPSR Innovation Profile](#)
- [Options for reducing greenhouse gas emissions from agriculture and food systems](#)
- [Wholesalers, wholesale markets, and symbiosis with the emerging logistics sector](#)

Section 3: Work Package progress

WP1: Making globally integrated value chains inclusive, efficient, and environmentally sustainable



Work Package 1 progress against the theory of change

WP1 focused on improving global agricultural value chains by strengthening vertical coordination, raising product quality, and facilitating the distribution of information. In three case studies, CGIAR researchers and partners conducted controlled trials to test innovative solutions to help farmers and agrifood businesses meet the strict standards of export markets.

The Honduras coffee study explored strategies for developing a digital public infrastructure to improve information flows, showing that digital innovations help strengthen vertical coordination and facilitate technology adoption. The study also developed typologies of women working in coffee value chains, revealing that age, socioeconomic status, and lived experiences influenced women's constraints and opportunities in accessing jobs and resources. The findings were made accessible through a Gender Equity Toolkit for use by decision-makers. The Initiative piloted an app to facilitate traceability and data exchange in fragmented value chains. The app will facilitate compliance with the European Union's (EU) Deforestation Regulation and maintain access to this key market. The project was working toward a georeferenced database of farmers in Honduras to foster transparency and coordination.

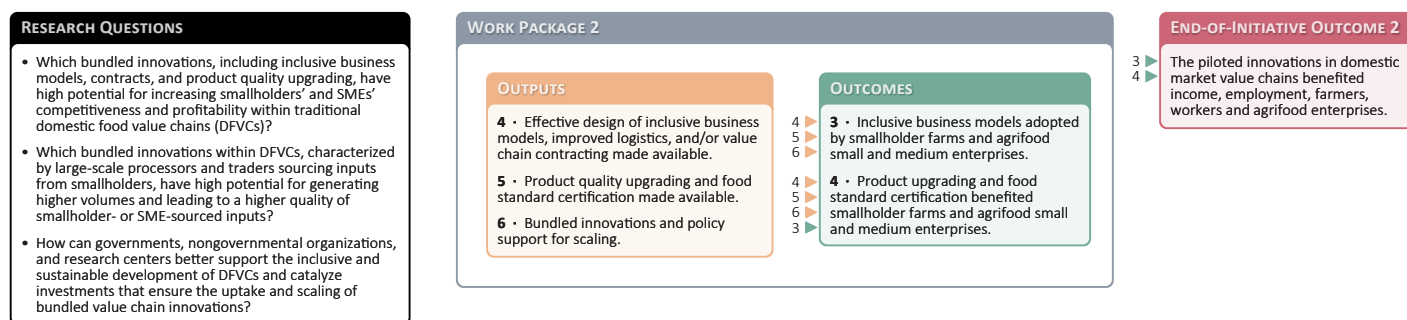
The Ethiopia sesame study conducted a trial among 1,560 beneficiary farm households to assess the benefits of using a platform for digital information services and introduction of collective action services on sesame yields, prices, sales volume, and income. Collective action among farmers was intended to reduce the cost of input distribution and sesame delivery to traders. Market data from 19 sesame markets were collected weekly for 30 weeks and then shared with beneficiaries. The collective action intervention included three training sessions using a project-designed manual. The implementation of the piloted innovations faced significant difficulties due to the conflict in northwestern Ethiopia. However, survey data for the impact assessment could be collected, and

impact assessment reports were planned for the future (within six months). Concurrent studies on sesame marketing, price cointegration, and volatility were also being completed. The research will identify strategies to reduce the cost of inputs, raise the prices received by farmers, and improve agricultural export policy.

In the case of the shrimp value chain in Bangladesh, the Initiative first carried out a scoping study that identified quality control and lack of vertical coordination as key challenges faced by the sector. To address these challenges, the government, a private shrimp processing business, and an industry association each engaged in initiatives aiming to cluster contiguous shrimp farms to facilitate quality certification of the clusters' produce for enhanced global market access. Evaluation of these initiatives indicates that cluster farmers adopted better management practices but did not experience significant gains in terms of overall net profits. Programs should therefore focus on improved post-larvae and cultivation methods rather than clustering. The study also explored the challenges faced by Bangladesh's shrimp sector in global markets. Findings showed that diversifying its export markets should help the sector increase sales and obtain better prices. The findings were shared with stakeholders through meetings, reports, a policy brief, a blog, and six presentations.

In summary, WP1 made significant progress in diagnosing export value chain problems and testing promising solutions. In Honduras, the coffee study began building the digital infrastructure needed to comply with European deforestation regulations. In Ethiopia, results on the impact of market information and collective marketing on sesame output were delayed by the conflict but will be available in 2025. In Bangladesh, the shrimp study found that clustering and monoculture were not profitable for farmers and that focus should be on improved post-larvae and technical assistance.

WP2: Innovation for inclusive and sustainable growth of domestic food value chains



Work Package 2 progress against the theory of change

The objective of WP2 was to identify and test promising innovations to improve selected domestic value chains by making them more efficient, more inclusive, and/or more sustainable. WP2 was comprised of case studies focused on the fruits and vegetable value chain in Nigeria, the dairy value chain in Uganda, and the maize and bean value chains in Honduras. The overarching objective of WP2 was to provide guidance on effective and scalable transformation of domestic agrifood value chains to include innovation in business models, logistics and infrastructure, production technologies, contracting, certification, and other institutional arrangements that facilitate quality upgrading, reduced environmental impacts, and increased benefits for farmers and SMEs.

In 2024, Initiative researchers generated policy guidance from the results of a series of experimental evaluations of bundled sets of innovations (at least one per country and value chain, as planned). The tested innovations were defined through [scoping activities](#) in the first year of the Initiative, in consultation and collaboration with local and national stakeholders in each country (Nigeria, Uganda, and Honduras). The innovation tested in Uganda focused on two sets of complementary innovation bundles delivered at different value chain levels: (1) milk quality measurement equipment ("lactoscans") and electronic record keeping at the milk collection center (MCC) level and (2) improved extension services at the farmer level, with information content designed to clarify the distinction between different milk quality parameters and the management options that could influence these outcomes. The trial was designed to evaluate whether these innovations enable quality incentives in fluid milk value chains to emerge in the form of quality-based price differences. This work has already shown [significant improvements in milk quality at MCCs using analyzers](#), with other impacts anticipated to emerge over time (and which will be monitored through planned work under the Better Diets and Nutrition Science Program). The pilot was

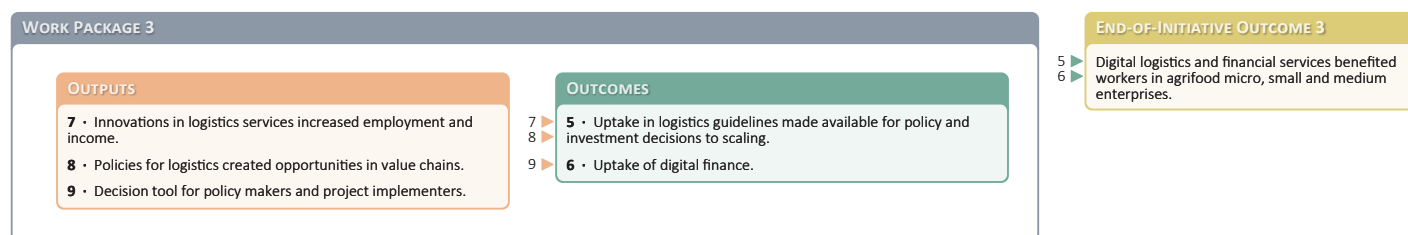
estimated to have directly reached 35,000 smallholders serving 70 MCCs in the southwestern Uganda milk-producing region, with as many as 100,000 households benefiting from improved milk quality in domestic markets.

In Nigeria, a set of four separate randomized control trials were conducted on different innovations in the fruits and vegetable value chain: (1) [refrigerated transport and cold storage and labeling](#), (2) solar dryers and marketing/logistics [support](#), (3) plastic crates and marketing/logistics [support](#), and (4) [improved seed bundled with branding](#). Testing focused on identifying impacts on value chain efficiency and decreases in food wastage. These innovations benefited approximately 625 wholesale traders, 5,180 retail traders, and 7,135 smallholder farmers, while an estimated 33,750 households in the intervention areas were estimated to have benefited directly through access to better quality but cheaper fruits and vegetables.

In Honduras, the Initiative tested [the effects of quality certification and improved market price information in the bean value chain](#) on the supply of higher-quality beans, the incomes of farmers and intermediaries, and bean consumption among the local population. The piloted innovations directly benefited approximate 700 farm households, as well as an unknown (but likely quite large) number of consumers. Complementary work examined scaling potential of innovations [in value-addition in maize and bean value chains](#), highlighting both constraints to innovation in the system and several technical innovations with potential for further scaling.

In all three cases, the impacts of the innovations were evaluated in consultation with local stakeholders through a series of consultative engagements in which lessons for scalability were assessed (recordings of many of these meetings are available, such as for [Uganda](#), and [Nigeria](#)). These consultations took place in 2024.

WP3: Innovations and policy design for development of cross-value chain services to leverage new employment and income opportunities



Work Package 3 progress against the theory of change

WP3 sought to provide rigorous evidence on the need for and impact of innovations in financial services and logistics that can create employment and income opportunities in value chains. During 2024, implementation of innovations in Bangladesh, Uganda, and Nigeria was completed. The innovations were codesigned in partnership with innovative private SMEs operating in each of the three countries; these partnerships were instrumental to the achievement of WP-level outcomes.

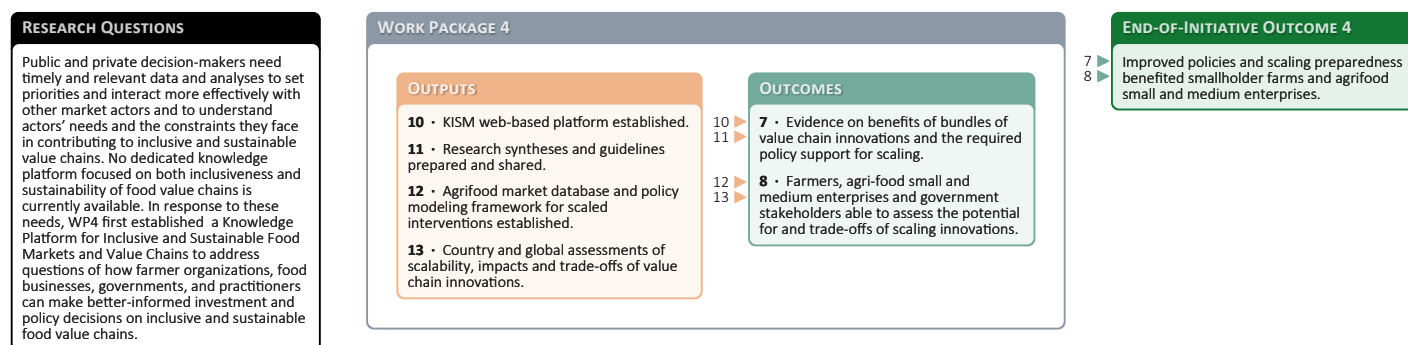
In Bangladesh, researchers partnered with WeGro, a local pioneer in private sector financing for development, to evaluate [an innovative financing scheme for livestock fattening](#). The partnership generated [practical learnings](#) on the operational frameworks essential for successful implementation of this type of program, covering (1) effective procurement strategies (for cattle and eventually grains), (2) insurance provision to protect WeGro and farmers' investments, and (3) close field-level oversight to ensure staff performance and farmers' adherence to contract terms. [These insights prompted adjustments](#) in WeGro's eligibility criteria, loan administration processes, and daily field operations, ultimately guiding a pivot from livestock financing to a more sustainable crop financing model that better reflects market constraints and farmer demand (outcome 6).

In Nigeria, the Initiative worked with Crop2Cash, a digital finance and logistics services start-up, to investigate the needs of farmers and

how changes to the company's loan structure can make their product more attractive to farmers. [The research tested both an additional input and an additional cash component](#). Despite concerns about the sustainability of the cash loans, [the study found](#) that repayment was not worse on cash loans compared to input loans. In a context of high inflation, the work also found that many farmers reported preferring small input loans to cash loans. [Crop2Cash was using this evidence in planning the expansion of their loan programs](#), with the understanding that cash is a viable option, while also moving toward context-specific needs assessments to ensure the right modalities are offered for each community (outcome 6).

In Uganda, researchers partnered with EzyAgric, [a service that provides digital access to farm inputs](#). EzyAgric has around 300,000 registered farmers, yet only 20 percent actively use the service. Researchers thus collaborated with EzyAgric to promote awareness. [Key findings show that the initiatives increased awareness and purchasing of improved seeds](#) using digital innovations by fourfold, resulting in an increase in farmer revenues. However, gender disparities existed, [indicating a need for gender-sensitive training approaches](#). EzyAgric was using the insights gained from the pilot programs and training sessions to [expand their operations](#) into new regions (outcome 5).

WP4: Knowledge tools for policy coherence and market reform for inclusive and sustainable food markets and value chains



Work Package 4 progress against the theory of change

The research under WP4 aimed to enable farmers, agrifood SMEs, and policymakers to use evidence about the benefits of value chain innovations and the required policy support. This was achieved through the establishment of KISM (output 1), research syntheses and guidelines (output 2), food market-wide databases and modeling tools (output 3), and model-based scenario and policy analyses of scalability of value chain innovations and benefits and trade-offs of repurposing of existing agricultural policy support (output 4).

The [KISM platform](#), established on 7 March, 2023, serves as a hub for knowledge exchange between researchers and stakeholders. Evidence from case studies across the four WPs was shared through channels such as KISM webinars, influencing decision-making in food value chains. Between 2022 and 2024, 13 webinars reached more than 1,000 participants, including researchers, private sector stakeholders, and policymakers.

KISM leveraged three major research syntheses (meta-studies).

The [first meta-study](#) on employment benefits of value chain innovation and supportive policies showed that productivity-enhancing farm-level innovations generate substantial positive income and employment effects, including for smallholders. However, [enabling policy support](#) is needed to achieve inclusive value chain development.

The second meta-study highlighted the rapidly changing food value chain dynamics in low- and middle-income countries. It showed the development of [outsourcing to third-party agrifood service providers](#), improving farm efficiency and market access, and [boosting SME participation in the midstream](#) of food value chains. The meta-study further showcased how [clusters of value chain actors](#) in the midstream help catapult value chain development and boost production and distribution in the case of value chains for fruits, vegetables, and animal-source products. These changes have significant implications for understanding value chain innovations and rethinking policies.

The [third meta-study](#) focused on the role of informality in food system change. It found that middlemen play a crucial role in informal food supply chains, but their importance is often overlooked in policymaking. The study provides directions for designing

regulatory frameworks and policies considerate of high degrees of informality.

WP4 researchers also designed a [novel global “agrifood database”](#) that identifies the potential for employment and income generation by agrifood sectors globally, regionally, and by country. The database identifies employment and earnings differentials across food supply chains and inequalities by gender and skill level. Key indicators show that average earnings in post-farm agrifood activities are significantly higher than for farm workers and that women consistently earn less than men across food supply chain segments.

The [analytical frameworks](#) for global and country-level model-based scenario analyses (MIRAGRODEP, RIAPA) were used to assess the economy-wide impacts of innovations piloted in WPs 1–3 and options for repurposing agricultural support, focusing on employment, poverty, food security, and climate change mitigation. A policy indicator database ([AgIncentives](#)) was updated to support these analyses.





The [country-level scenario analyses](#) emphasize the importance of assessing value chain innovations through economy-wide analysis. Preliminary assessments in five focus countries show that productivity-enhancing innovations boost supply but need bundling with interventions to lift demand constraints. Export-oriented value chains (sesame in Ethiopia, coffee in Honduras, and shrimp in Bangladesh) show great potential for job creation and poverty reduction through productivity improvements and price premiums. Domestic market-oriented value chains (fruits and vegetables in Nigeria, dairy in Uganda, and beans in Honduras) tangibly improve income and employment opportunities when scaled, but these gains multiply with deeper value chain integration.

[Global analysis](#) on policy reforms for inclusive and sustainable food systems and reduction of GHGs found benefits in reorienting support toward research and development for sustainable agriculture and incentives for improved practices. This analysis influenced the [COP28 Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action](#), a landmark commitment by 159 Heads of State, which calls for the need to “revisit or reorient policies and public support” to solve the problems related to the food-climate nexus.

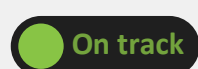


A woman coffee producer from Lenca tribe, municipality of San Francisco de Opalaca, Honduras.
Credit: René Rodríguez-Fableno

Work Package progress rating summary

WORK PACKAGE	PROGRESS RATING & RATIONALE
1	 On track <p>Targets were achieved in the Bangladesh shrimp and Honduras coffee studies, and the Ethiopia sesame study was on track, though delayed by the conflict. All three studies conducted a scoping study and carried out baseline and endline surveys to evaluate interventions to improve information, vertical coordination, and quality control. All three carried out supplemental studies, including an assessment of EU markets for shrimp, a study of sesame market efficiency, and research on gender in the coffee sector.</p>
2	 On track <p>Main research targets were met in Uganda, Honduras, and Nigeria, with some modifications due to unforeseen seasonal outcomes that affected the quality of intervention estimates in two settings (plastic crates for tomatoes in Nigeria and certification and price information for beans in Honduras) and delayed the completion of the solar dryer study (which was still in progress). Furthermore, one of the anticipated reports for Honduras was not yet completed. However, in all three countries, scoping reports and innovation evaluations were implemented as planned, generating actionable insights for scaling efforts related to the tested innovations. The targets were met for WP outcomes and associated EOIOs.</p>
3	 On track <p>Targets were achieved for all three WP outputs. Targets were additionally achieved for both WP outcomes and the associated EOIO. Evaluations of case studies in all three countries were completed, contributing to the achievement of outputs and outcomes through knowledge products and partner influence. Additional related work was also completed under the Initiative. Remaining analysis and development of related case studies will contribute to new work in the Better Diets and Nutrition and Policy Innovation Science Programs.</p>
4	 On track <p>Delivery on outputs 1, 2, 3, and most of 4 (KISM, meta-studies, agrifood database, and global scenario analysis) were completed. The country-level model analysis for assessing impacts of scaled innovations and supportive policies (output 4) had preliminary findings for Nigeria, Honduras, Uganda, and Ethiopia; provided resources were made available by the Better Diets and Policy Innovations Science Programs, and this analysis will be finalized in 2025 to include Bangladesh and, for all country cases, to account for the assessed benefits of all innovations as identified by the impact evaluations of the piloted innovations and reassess the economy-wide impacts of scaled innovations and policy support.</p>

Definitions



On track

- ✓ Progress largely aligns with Plan of Results and Budget and Work Package theory of change.
- ✓ Can include small deviations/issues/delays/risks that do not jeopardize success of Work Package.



Delayed

- ⚠ Progress slightly falls behind Plan of Results and Budget and Work Package theory of change in key areas.
- ⚠ Deviations/issues/delays/risks could jeopardize success of Work Package if not managed appropriately.



Off track

- ✗ Progress clearly falls behind Plan of Results and Budget and Work Package theory of change in most/all areas.
- ✗ Deviations/issues/delays/risks do jeopardize success of Work Package.

Section 4: Quantitative overview of key results

This section provides an overview of results reported and contributed to, by the CGIAR Initiative on Rethinking Food Markets from 2022 to 2024. These results align with the [CGIAR Results Framework](#) and Rethinking Food Markets’s theory of change. Further information on these results is available through the [CGIAR Results Dashboard](#).s theory of change. Further information on these results is available through the [CGIAR Results Dashboard](#).

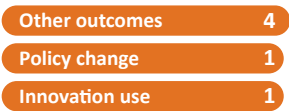
The data used to create the graphics in this section were sourced from the CGIAR Results Dashboard on 04 April 2025. These results are accurate as of this date and may differ from information in previous Technical Reports. Such differences may be due to data updates throughout the reporting year, revisions to previously reported results, or updates to the theory of change.

OVERVIEW OF RESULTS BY CATEGORY

Outputs



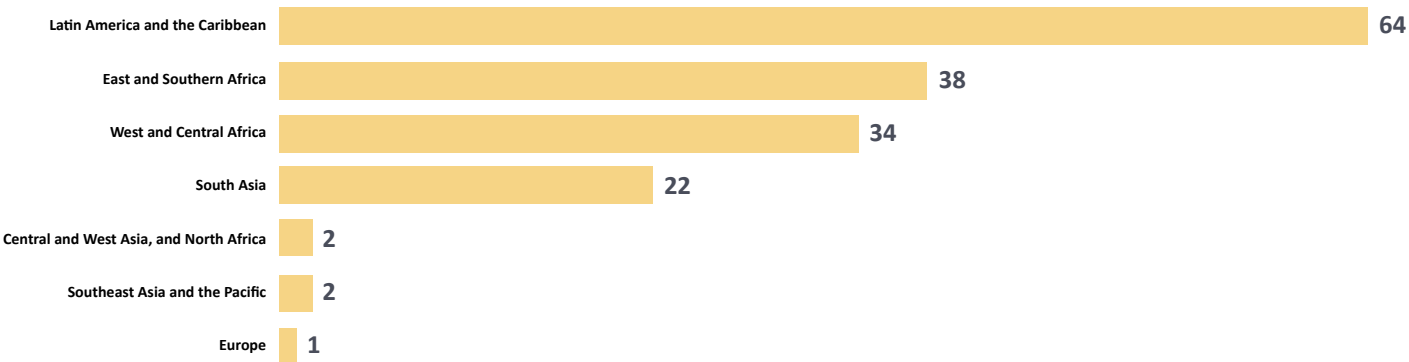
Outcomes



The data summarizes results from the Initiative over the 2022–2024 period. It shows a total of 213 key results reported in the period, including 137 knowledge products, 24 innovations, and 32 capacity-sharing activities.

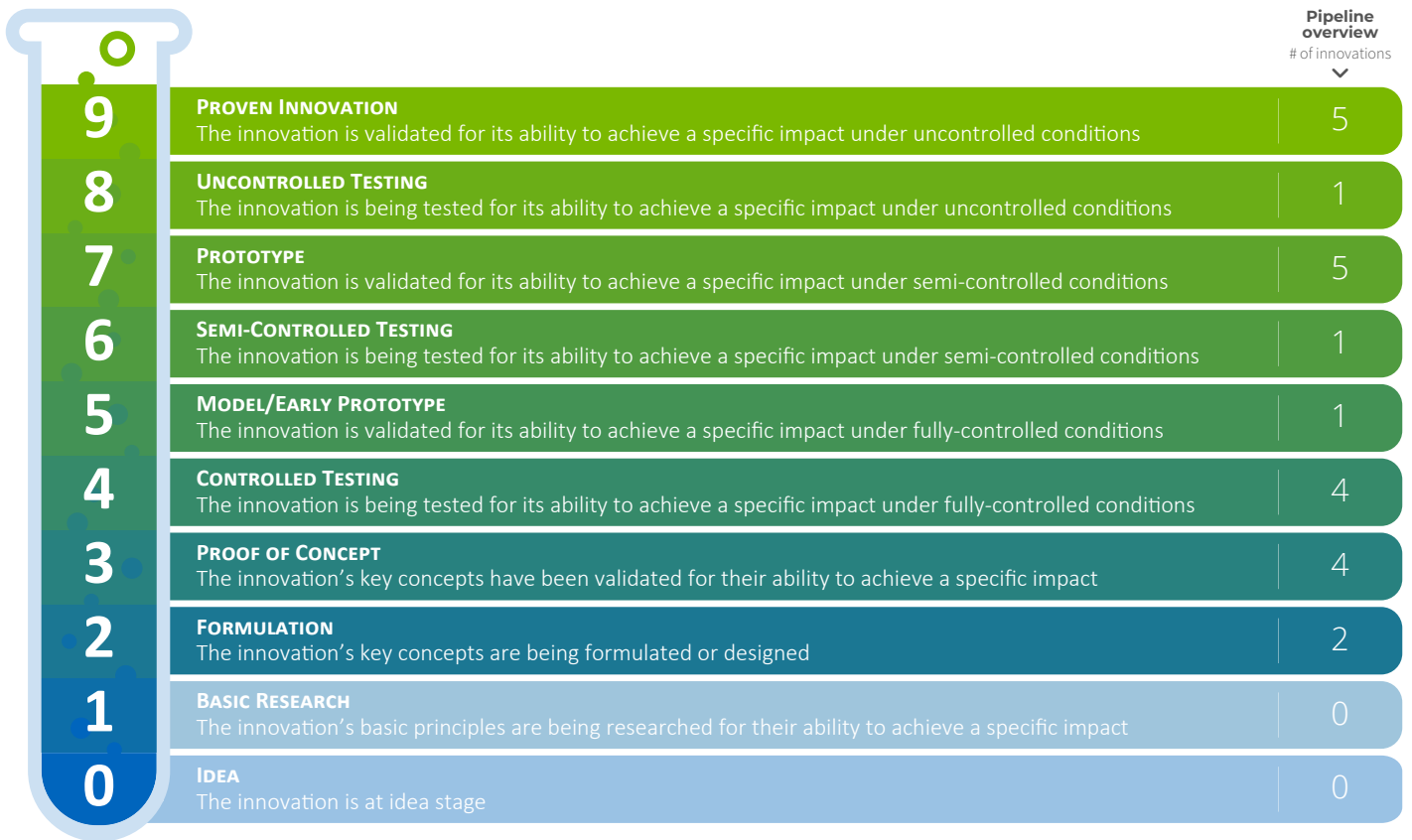
The Initiative achieved its outcome targets largely through the documentation of innovation beneficiaries contained in knowledge products and other outputs. The Initiative also reported outcome results related to the uptake of learning from the tested innovations. This includes evidence from innovations in five target countries: Uganda, Nigeria, Bangladesh, Ethiopia, and Honduras. The stakeholder workshops on innovation and scaling preparedness held in each country provided indications that uptake would accelerate in the first half of 2025 as stakeholders continue implementing the new practices, and policymakers provide the enabling environment needed to facilitate scaling of the innovations.

GEOGRAPHIC FOCUS OF RESULTS

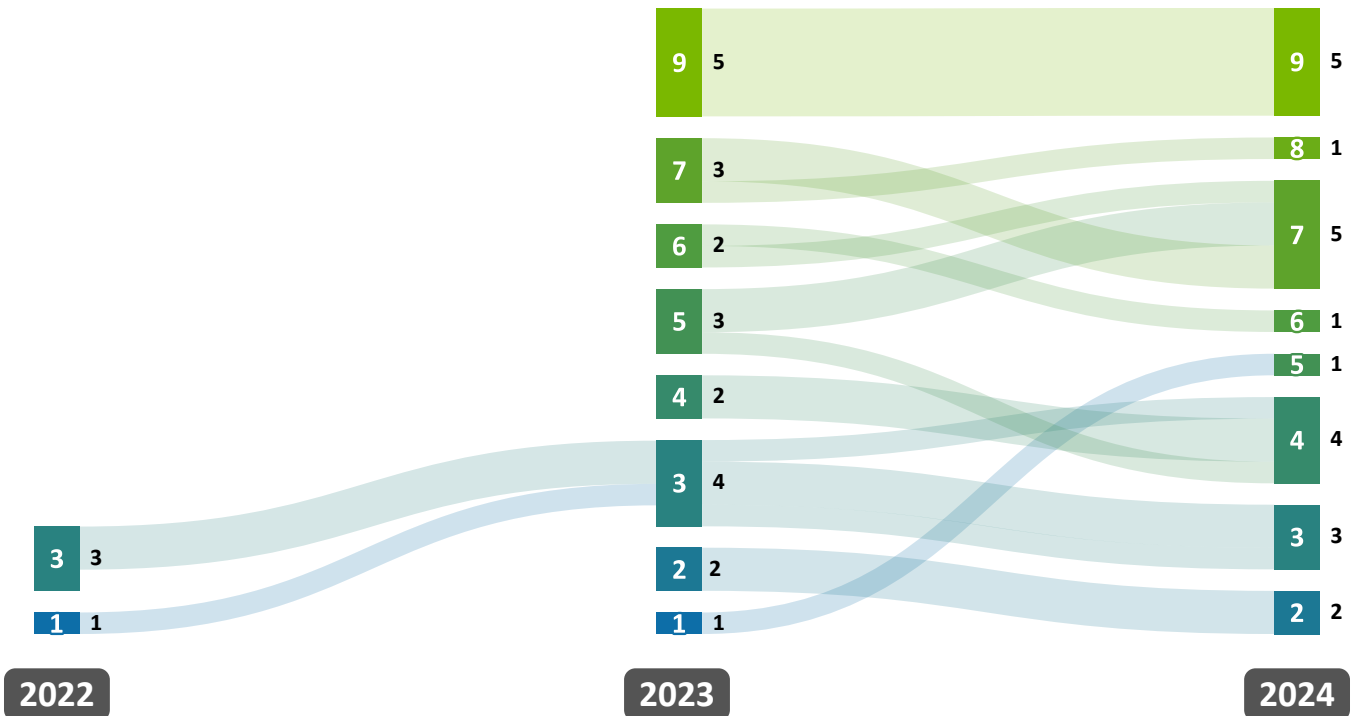


Initiative’s outputs were predominantly reported from Latin America, specifically Honduras, followed by significant contributions from East and Southern Africa, West and Central Africa, and South Asia. Additionally, a notable portion of findings were globally focused, demonstrating broad applicability.

INNOVATIONS BY READINESS LEVEL



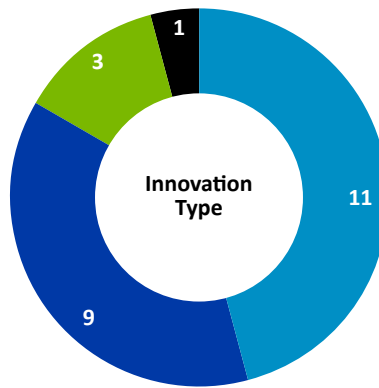
INNOVATIONS READINESS LEVELS PROGRESSION (2022-2024)



9 Proven Innovation · 8 Uncontrolled Testing · 7 Prototype · 6 Semi-Controlled Testing · 5 Model/Early Prototype · 4 Controlled Testing · 3 Proof of Concept · 2 Formulation · 1 Basic Research · 0 Idea · D Discontinued

Approximately 20 percent of reported innovations achieved the maximum of nine on the innovation scale, signifying robust validation of their impact potential under controlled conditions. The above infographic also reveals that a majority of these innovations were used by farmers, highlighting a targeted effort to deliver validated, impactful solutions directly to agricultural end-users.

INNOVATIONS BY TYPOLOGY



TECHNOLOGICAL INNOVATION

Innovations of technical/material nature, including varieties/breeds, crop and livestock management practices, machines, processing technologies, big data, and information systems.

POLICY/ORGANIZATIONAL/INSTITUTIONAL INNOVATION

Innovations that create enabling conditions, including policy, legal and regulatory frameworks; business models; finance mechanisms; partnership models; public/private delivery strategies.

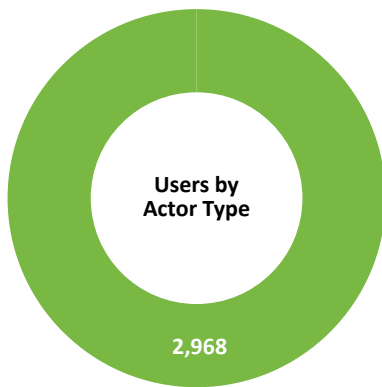
CAPACITY DEVELOPMENT INNOVATION

Innovations that strengthen capacity, including farmer, extension or investor decision-support services; accelerator/incubator programs; manuals, training programs and curricula; online courses.

OTHER INNOVATION

Unknown or the type does not work for the innovation.

INNOVATIONS USERS BY ACTOR TYPE



Farmers
(Agro)pastoralist
Herders
Fishers



Unspecified

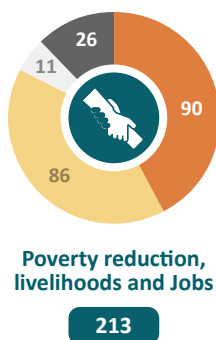
2,968

NUMBER OF RESULTS BY IMPACT AREA CONTRIBUTION



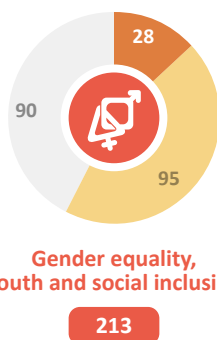
Nutrition, health and food security

213



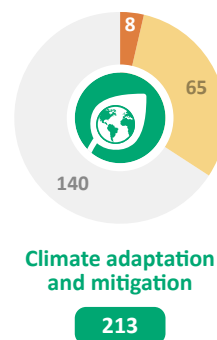
Poverty reduction, livelihoods and Jobs

213



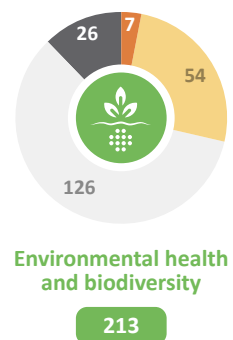
Gender equality, youth and social inclusion

213



Climate adaptation and mitigation

213



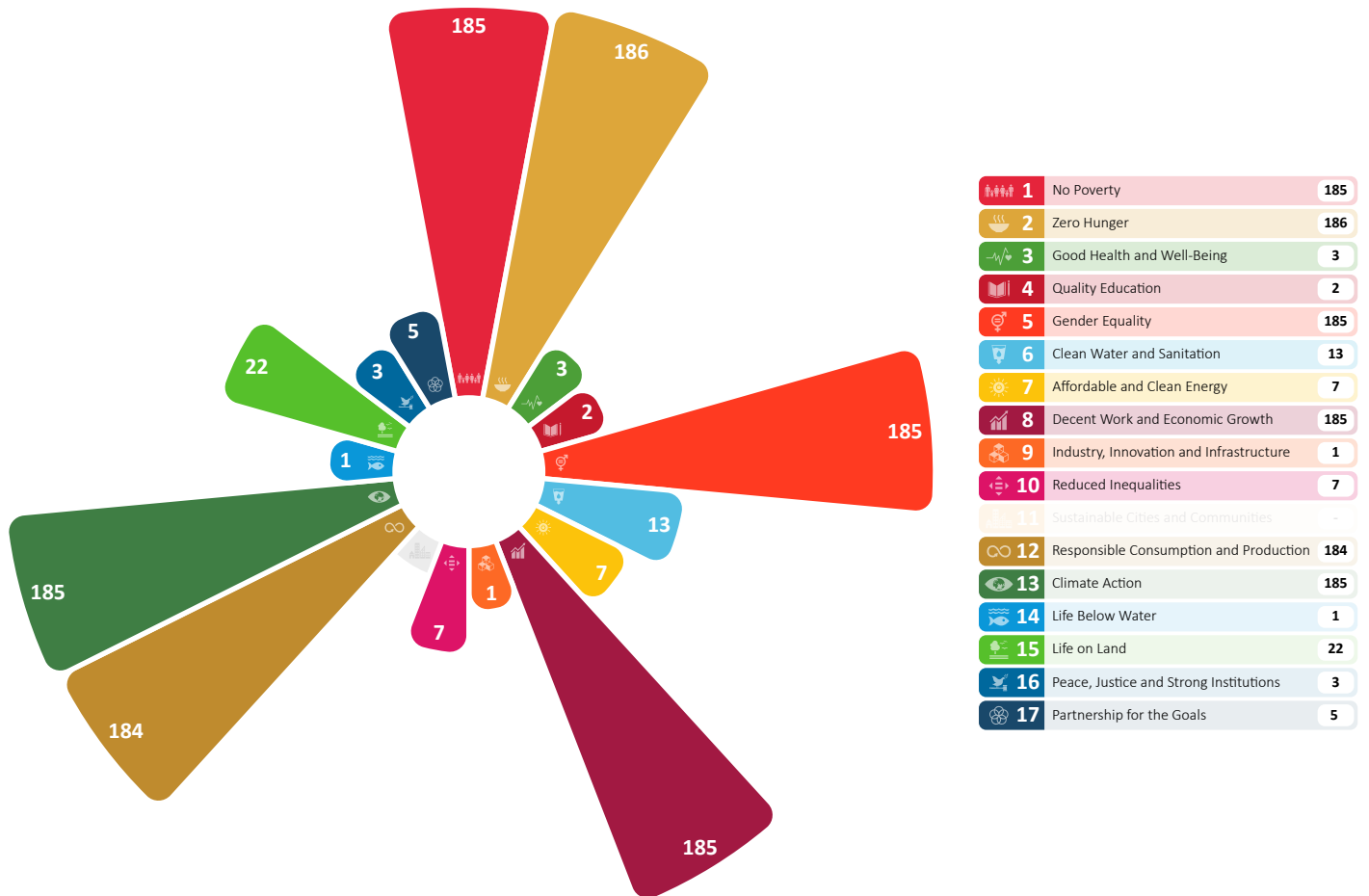
Environmental health and biodiversity

213

- **2 = Principal:** Contributing to one or more aspects of the Impact Area is the principal objective of the result. The Impact Area is fundamental to the design of the activity leading to the result; the activity would not have been undertaken without this objective.
- **1 = Significant:** The result directly contributes to one or more aspects of the Impact Area. However, contributing to the Impact Area is not the principal objective of the result.
- **0 = Not targeted:** The result has been screened against the Impact Area, but it has not been found to directly contribute to any aspect of the Impact Area as it is outlined in the [CGIAR 2030 Research and Innovation](#) strategy.
- **Not applicable:** Pertains to 2022 reported results when only information on Gender and Climate impact area tagging was available.

The Initiative contributed to all three CGIAR Science Groups, particularly to Systems Transformation and Genetic Innovation, and mainly to four of the five CGIAR Impact Areas.

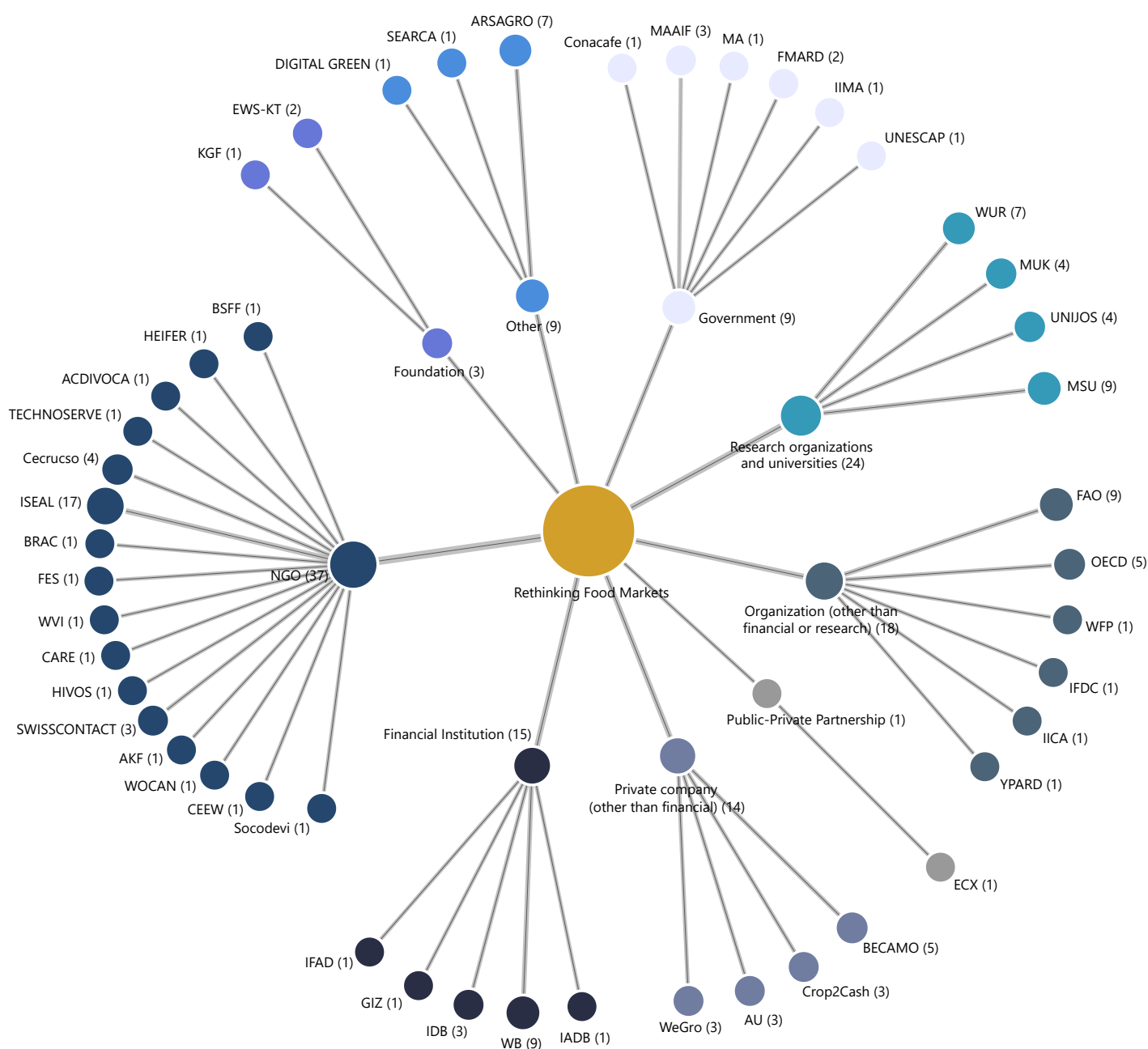
CONTRIBUTIONS TO THE UN SUSTAINABLE DEVELOPMENT GOALS



All Initiative outputs and outcomes contributed to the achievement of Sustainable Development Goals 1 (poverty reduction), 2 (zero hunger), and 5 (gender equality).

Section 5: Partnerships

RETHINKING FOOD MARKETS' EXTERNAL PARTNERS



The diagram maps the external partners of the Rethinking Food Markets Initiative, organized by partner type. The numbers in brackets represent the number of results each partner has contributed to, reflecting the scale and diversity of collaborations. To allow for a clearer view, a maximum threshold of five partners was applied for each typology. The list of partner acronyms is available [here](#).

Partnerships and Rethinking Food Markets' impact pathways

The Initiative worked with a broad range of partners, depending on the needs of the research portfolio of each WP. For the design of the bundles of process and product innovations for the selected value chains, a combination of international and local innovation, scaling, and demand partners were involved, including private sector partners. The Initiative's 2022 and 2023 annual reports showcased the example of the partnerships developed for the introduction of bundled innovations in, respectively, [the fruits and vegetable value chain in Nigeria](#) and development for [e-finance platforms supporting smallholders' and women's access to asset finance in Bangladesh](#).

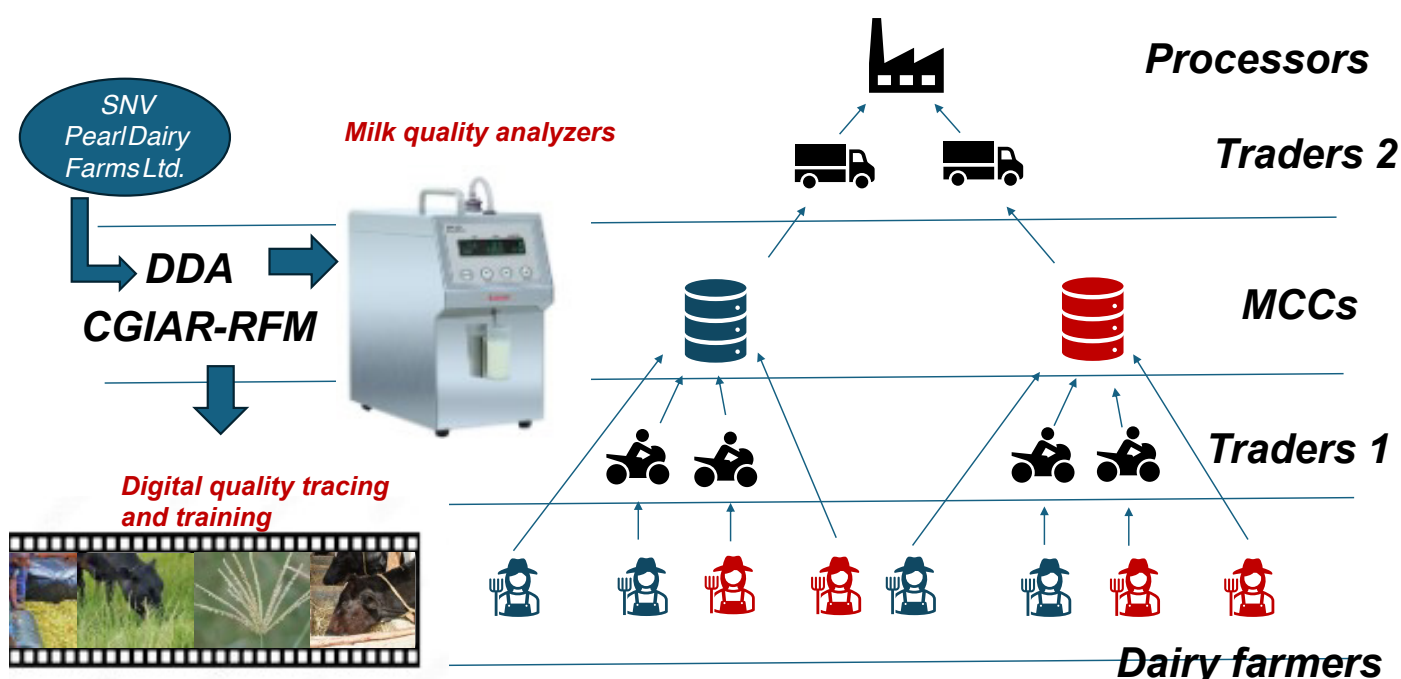
A further example was shown by Initiative partnerships developed in the context of the piloted innovations in [Uganda's dairy value chain](#). The intervention was designed, developed, and implemented in close collaboration with Uganda's Dairy Development Authority (DDA), which regulates and promotes the country's dairy sector, and built on earlier small-scale pilot interventions by the nonprofit Netherlands Development Organization and experiments by processors with quality-based payment systems (Pearl Dairy Farms Ltd). The Initiative further collaborated with 150 MCCs for the installation of milk quality testing equipment to test and establish the quality of milk samples from individual farmers and traders. MCC owners and

managers were trained in the proper use and maintenance of the equipment. The DDA is responsible for assisting in the calibration of the milk analyzers, ensuring that the results are reliable and within acceptable standard ranges. In addition to the milk analyzers, the Initiative worked with various partners to establish a digital information system to trace milk quantity and quality throughout the supply chain. The system allows MCCs to register farmers and traders supplying and buying milk. MCC managers record milk deliveries and purchases, including quantities and prices for each transaction, along with a range of quality parameters measured through the milk analyzers (such as butter fat percentage, solids-not-fat, added water, and protein content), providing a digital recordkeeping solution. The digital application also enables MCC managers and owners to generate simple reports of trends in those indicators at the MCC, farm, and trader levels, as well as reports of payments owed to farmers or to be received from traders. At a more aggregate level, an online portal was developed to provide policymakers, processors,

and exporters access to real-time information to support decision-making.

These partnerships helped overcome a lack of capacity among MCCs to accurately test milk composition quality. Previously, MCCs primarily conducted rudimentary tests for adulteration, such as a gravity-based method to test for added water (lactometer) and a test based on the stability of the amount of proteins in milk to test for freshness (alcohol test). The Initiative's partnership with the DDA and MCCs introduced proper quality testing at the farm, trader, and MCC levels, generating substantial improvement in the quality of milk available to consumers, as well as higher incomes for farmers and traders due to the price premium on quality milk. Additionally, DDA representatives stated that they see the value of the milk analyzer information, accessible via the online dashboard created by the Initiative, in helping to monitor the sector and thereby guide their strategic decision-making in the future.

PARTNERSHIPS FOR INNOVATIONS IN UGANDA'S DAIRY VALUE CHAIN



This type of public-private-research partnership was developed for all piloted value chain innovations in the case studies conducted under WPs 1–3 in Bangladesh, Ethiopia, Honduras, Nigeria, and Uganda. In the case of WP4, important partnerships were developed with, among others, the ISEAL Alliance for the development of KISM and Community of Practice. The figure below summarizes the partnerships developed throughout the duration of the Initiative.



Milk being added to the pooled stock by a worker at a milk collection center in southwestern milk shed, Uganda.
Credit: Richard, Ariong



Stakeholder workshop on scaling preparedness in Uganda.
Credit: Ambrose Atuhaire



*A member of the research team describes the methodology for constructing typologies to a group of women in Honduras.
Credit: Fernanda Soto*

Section 6: CGIAR Portfolio linkages

Portfolio linkages and Rethinking Food Markets' impact pathways

During the 2022–2024 period, the Initiative established linkages with several other Initiatives in the CGIAR research portfolio. The main collaborations involved the CGIAR Research Initiatives on:

- **Foresight:** Co-development of the country-modeling framework (RIAPA) and its application to analyze the economy-wide impacts of scaled RFM innovations in the target countries, as well as co-development of the agrifood economic database.
- **National Policies and Strategies:** Sharing experiences with policy dialogues based on model-based scenario analyses (RIAPA).
- **Sustainable Healthy Diets and Fruit and Vegetables for Sustainable Healthy Diets:** Sharing research approaches and innovation design in supply chains for nutrition-rich and high-value foods (specifically dairy and fruits and vegetables).
- **Digital Transformation:** Collaboration on research design for inclusive business models for digital platforms.
- **Low-Emission Food Systems:** Joint development of emission-intensity database for selected value chains.
- **Gender Equality:** Sharing approaches for inclusive business model design and institutional frameworks to overcome constraints in access to resources and income and employment opportunities for women and youth.

Even though the Rethinking Food Markets Initiative did not overlap with these other Initiatives in value chain or country focus, the sharing of research approaches and methodologies, databases, experience, and policy and stakeholder dialogues was of mutual benefit.

Section 7: Key result story

Digital literacy training empowered 253 Ugandan households, increased e-purchases of seeds fivefold and enhanced access to digital agricultural services

Collaboration between the Alliance of Bioversity and CIAT and EzyAgric in Uganda boosted digital literacy, increasing e-seed



A joyful moment of digital innovation in farming.
Credit: Shutterstock, ID: Stock Photo 2193902341

purchases by fivefold and benefiting 253 farming households across Luwero, Nakaseke, and Mityana.

Primary Impact Area



Other relevant Impact Areas targeted



Contributing Initiative

Rethinking Food Markets

Contributing Centers

IFPRI · Alliance of Bioversity and CIAT

Contributing external partners

EzyAgric by Akorion limited

Geographic scope



Regions: East Africa

Countries: Uganda

Uganda's farming households experienced a fivefold increase in genuine e-seed purchases following a collaboration between the Alliance of Bioversity and CIAT and EzyAgric. The initiative, focused on boosting digital literacy and awareness of innovative digital agricultural services, benefited 253 farming households in Luwero, Nakaseke, and Mityana districts. This successful intervention, informed by awareness campaigns and a randomized control trial, is now guiding EzyAgric's expansion into new regions across Uganda, further improving smallholder farmer access to digital agriculture, supporting higher revenues, and ensuring broader impact.

In Uganda, the adoption and utilization of innovative digital agricultural services is low, limiting farmers' ability to enhance productivity and income. Barriers such as limited awareness of available technologies, insufficient digital literacy, and restrictive social norms hindered farmers' access to digital agricultural solutions. As a result, many smallholder farmers struggled to procure quality inputs, receive agronomic advisories, and access digital financial services for improved farm management.

To address these challenges, the Alliance of Bioversity and CIAT and EzyAgric designed [an intervention](#) to enhance farmers' digital literacy and increase their engagement with the EzyAgric platform. More than 300,000 farmers were registered on the EzyAgric digital agriculture platform, but only 20 percent actively engaged with it. The goal of the intervention was to enable smallholder farmers to integrate digital tools into their farming practices, leading to increased use of genuine inputs such as improved seeds, fertilizers, and agrochemicals. Additionally, improving farmers' access to agronomic information and e-extension services aimed to boost crop yields, income, and overall welfare.

The intervention introduced several targeted solutions in collaboration with stakeholders. Farmers underwent [digital literacy training](#) to navigate the EzyAgric platform, procure inputs electronically, and access advisory services through USSD codes and smartphone applications. They also received basic **agronomy training** on the proper application of agrochemicals, ensuring they acquired and used genuine agricultural inputs correctly. **On-site practical training** involved profiling farmers and demonstrating the use of the USSD service and e-procurement procedures for authentic seeds and agrochemicals. Furthermore, collaboration with EzyAgric

enhanced awareness of the platform's agri-shop feature, optimizing access to genuine seeds and strengthening the agro-input supply chain.

The intervention targeted **253 smallholder farming households** across Luwero, Nakaseke, and Mityana districts, benefiting both **male- and female-headed households**. As a result, the [number of orders increased](#) from 7 to 152, the **value of inputs transacted** rose from UGX (Ugandan Shilling) 330,000 to UGX 1.7M, the number of [farmers accessing agronomic information](#) increased from 152 to 725, and the **volume of seeds posted** on the platform grew from 189 kg to 1,574 kg. Although fertilizer use among male-headed households slightly decreased, this was attributed to improved knowledge of appropriate application, reducing unnecessary input use.

To ensure the successful uptake of digital agricultural solutions, several strategic activities were undertaken. In October 2023, **80 agro-input dealers** joined the EzyAgric platform as intermediaries for farmers without access to phones. A **baseline study** conducted from November to December 2023 collected data on farmers in control and treatment groups to assess preintervention conditions.

Digital literacy and agronomic training was conducted in two phases, with the first session in January–February 2024 and the second in May–June 2024. Training topics covered navigating the EzyAgric app interface, ordering inputs, accessing agro-advisory services, and safely using and handling of agrochemicals. [A structured training approach](#) was used, with subcounty-level training to introduce farmers to the app and village-level sessions focusing on profiling farmers, using the USSD service, ordering inputs, and properly using and storing agrochemicals. A follow-up survey in September 2024 assessed the impact of interventions and gathered data on key variables.

Through targeted digital literacy training and strategic collaboration with EzyAgric, the intervention successfully [increased smallholder farmers' engagement](#) with digital agricultural services. The resulting improvements in access to quality inputs, agronomic information, and e-extension services translated into [higher agricultural productivity and increased income](#). By addressing barriers to digital adoption, this initiative paved the way for broader technology-driven agricultural transformation in Uganda.

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As a result of this initiative, we have refined our route-to-market strategy to better serve farmers. The codeveloped training content has allowed us to expand into new regions . . . where we've onboarded 14 agri-hubs, each supported by four youth Digital Agriculture Champions. These champions are crucial in connecting farmers to essential services . . . through our platform.

William Luyinda Buyungo, CEO, EzyAgric



2022 key result story

CGIAR Initiative on Rethinking Food Markets



2023 key result story

Cold transportation reduces food losses and improves income and welfare in Nigeria - CGIAR



A woman sorts and cleans beans in a local shop in Olancho, Honduras.

Credit: Mirian Colindres, Senior Research Associate, Alliance Bioversity-CIAT