



Drop-in call 4: Poverty and Inclusion Impact Area

Rethinking Food Markets and Digital Innovation

Update for the CGIAR System Council

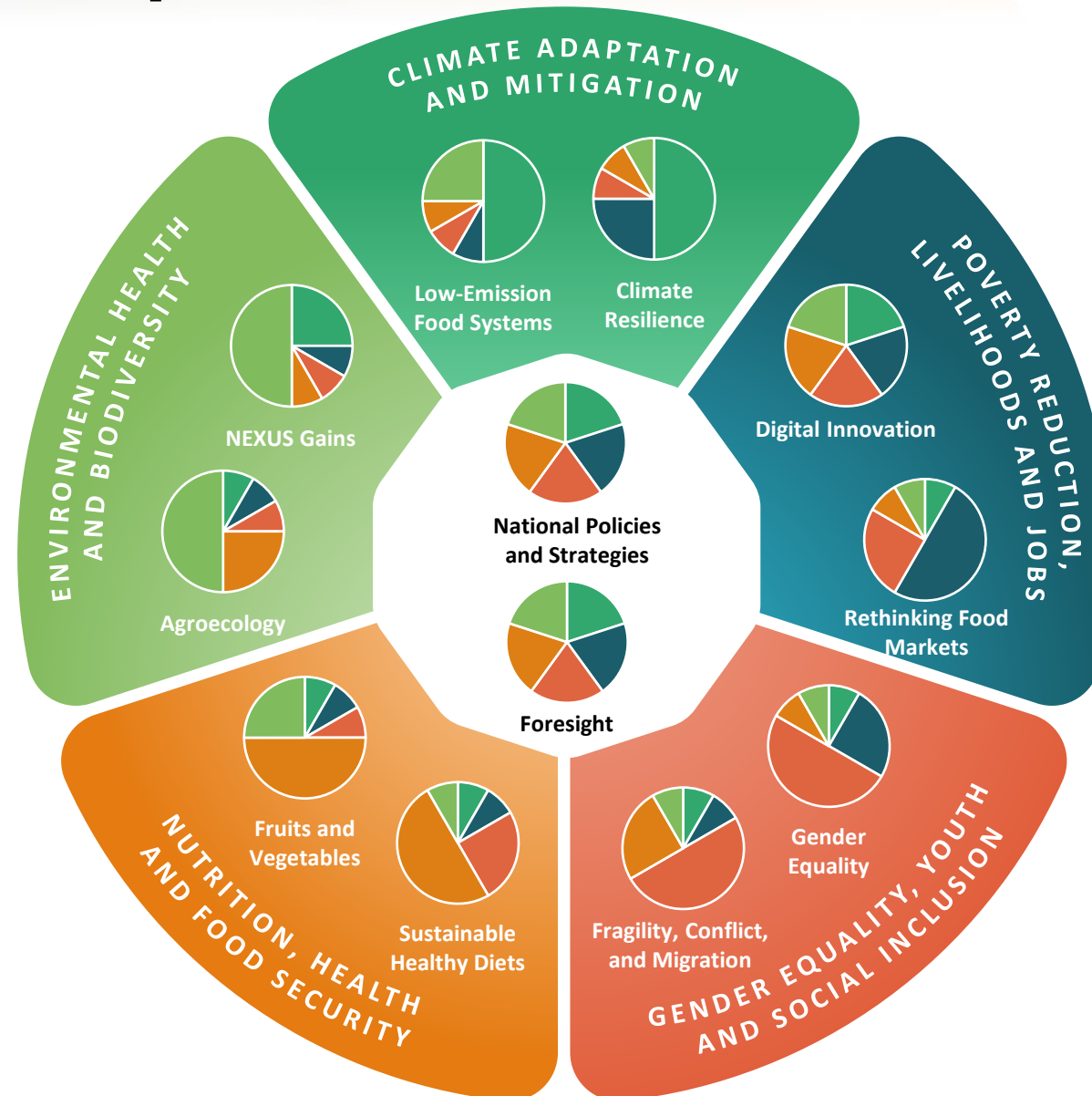
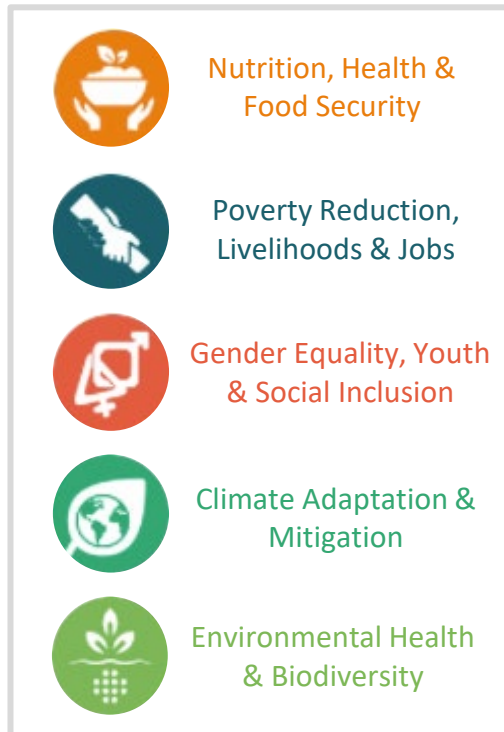
June 21, 2023

Schedule of upcoming Systems Transformation drop-in calls



Theme	Date	Time
Cross-cutting session (Foresight and National Policies and Strategies)	13-Apr	8am PST / 11am ET / 5pm Europe / 6pm East Africa
<i>Catch-up call for other time zones</i>	21-Apr	
Climate impact area (Climate Resilience and Low Emission Food Systems)	25-Apr	8am Manila / 10am Canberra / 7pm (Monday) Cali / 8pm (Monday) DC
<i>Catch-up call for other time zones</i>	3-May	
Environment impact area (NEXUS Gains and Agroecology)	24-May	8:30am UK / 9:30am Europe / 1pm Colombo / 5:30pm Canberra
<i>Catch-up call for other time zones</i>	1-Jun	
Poverty impact area (Digital Innovation and Rethinking Food Markets)	21-Jun	8am PST / 9am Mexico / 11am ET / 5pm Europe / 6pm Nairobi / 8:30pm New Delhi
<i>Catch-up call for other time zones</i>	29-Jun	9.30am CEST / 5:30pm AEST
Nutrition impact area (Sustainable Healthy Diets and Fruits and Vegetables)	TBD in July	
<i>Catch-up call for other time zones</i>	TBD in July	
Gender impact area (Gender Equality and Fragility, Conflict, and Migration)	TBD in July	
<i>Catch-up call for other time zones</i>	TBD in July	
Drop-in call for everyone	6-Sep	8:30am UK / 9:30am Europe / 1pm Colombo / 5:30pm Canberra
<i>Catch-up call for other time zones</i>	Week of September 11	

Systems Transformation Initiatives relationships to the Impact Areas



Points of Emphasis



1. Progress toward end of Initiative outcomes.
2. Scientific contributions.
3. Coherence with other CGIAR activities.

Outline



1. Introduction (Channing; 3 mins)
2. Rethinking Food Markets Initiative overview (Rob; 10 mins)
3. Digital Innovation Initiative overview (Andrea; 10 mins)
4. Q&A (35 mins)
5. Close (Channing; 2 mins)



INITIATIVE ON
Rethinking
Food Markets

Rethinking Food Markets and Value Chains for Inclusion and Sustainability



LEAD Rob Vos | CO-LEAD Christine Chege

Participating centers:

ABC, CIMMYT, ICARDA, IFPRI, IITA, IWMI, WorldFish

21 June 2023

Food System Challenges

01

Food sector is largest source of income & employment but unable to provide decent livelihoods for billions depending on it

02

Rural and urban workers employed in the agrifood sector are left with few prospects and are unable to afford a nutritious diet

03

Weaknesses & inefficiencies in VC are generating poor outcomes for the people and the environment

To address these challenges...

...the Initiative is generating evidence on innovations, incentives and policies effective for creation of equitable income and business opportunities.

Pilots are expected to directly benefit the livelihoods of at least 45,000 people of households of farmers and SME workers.

Key Objectives

1

IMPACT AREA: Poverty Reduction, livelihoods & Jobs;
Gender Equality, Youth and Social Inclusion

Poverty reduction

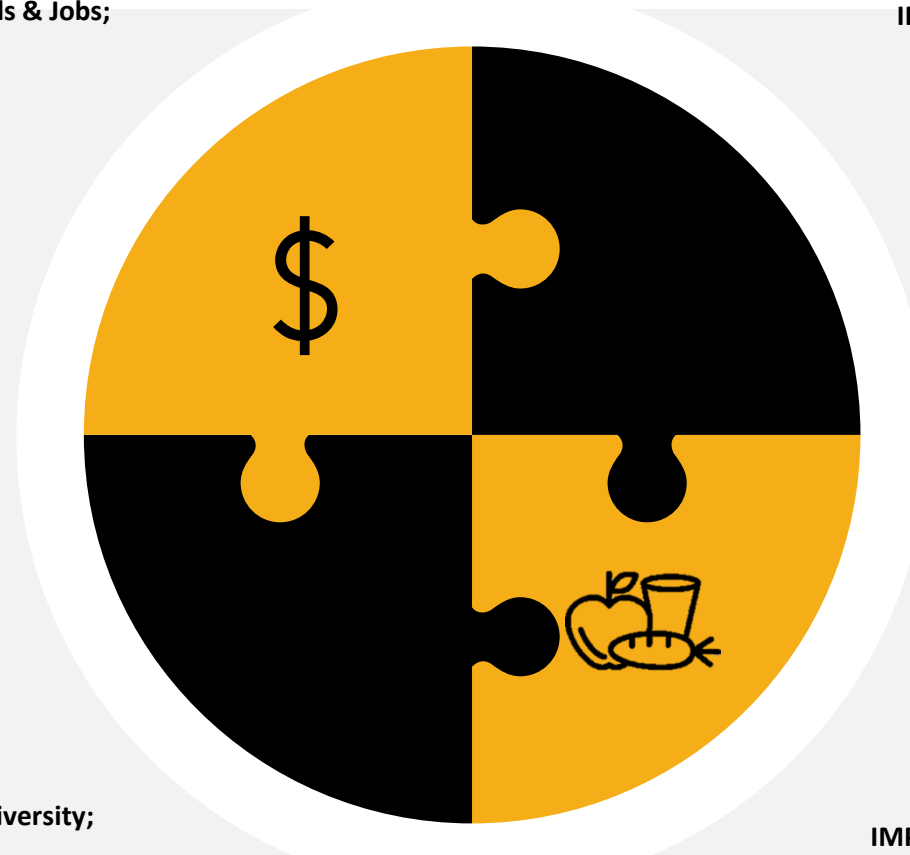
...through more employment and better incomes for smallholders and SMEs (especially women and youth)

Less food loss

...and waste through improved quality control and logistics

4

IMPACT AREA: Environment, Health and Biodiversity;
Climate Adaptation and Mitigation



IMPACT AREA: Climate adaptation and Mitigation

2

Lower GHG emissions

...in domestic and global food markets and value chains

Affordable healthy diets

...for poor people and nutritionally vulnerable population

IMPACT AREA: Nutrition, Health and Food Security

3

Geography & Partners



Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability



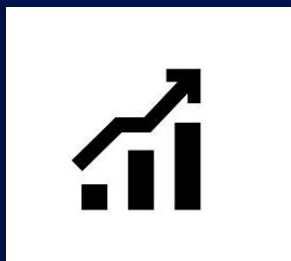
Research approach



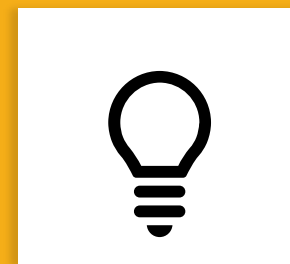
Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability

Gather, review, and synthesize previous research and secondary data, and carry out stakeholder consultations to identify potential innovations (for testing in 2023 and 2024)

02



Scaling up through market-wide incentives



Bundled innovations in food markets, VCs and cross-VC services

01



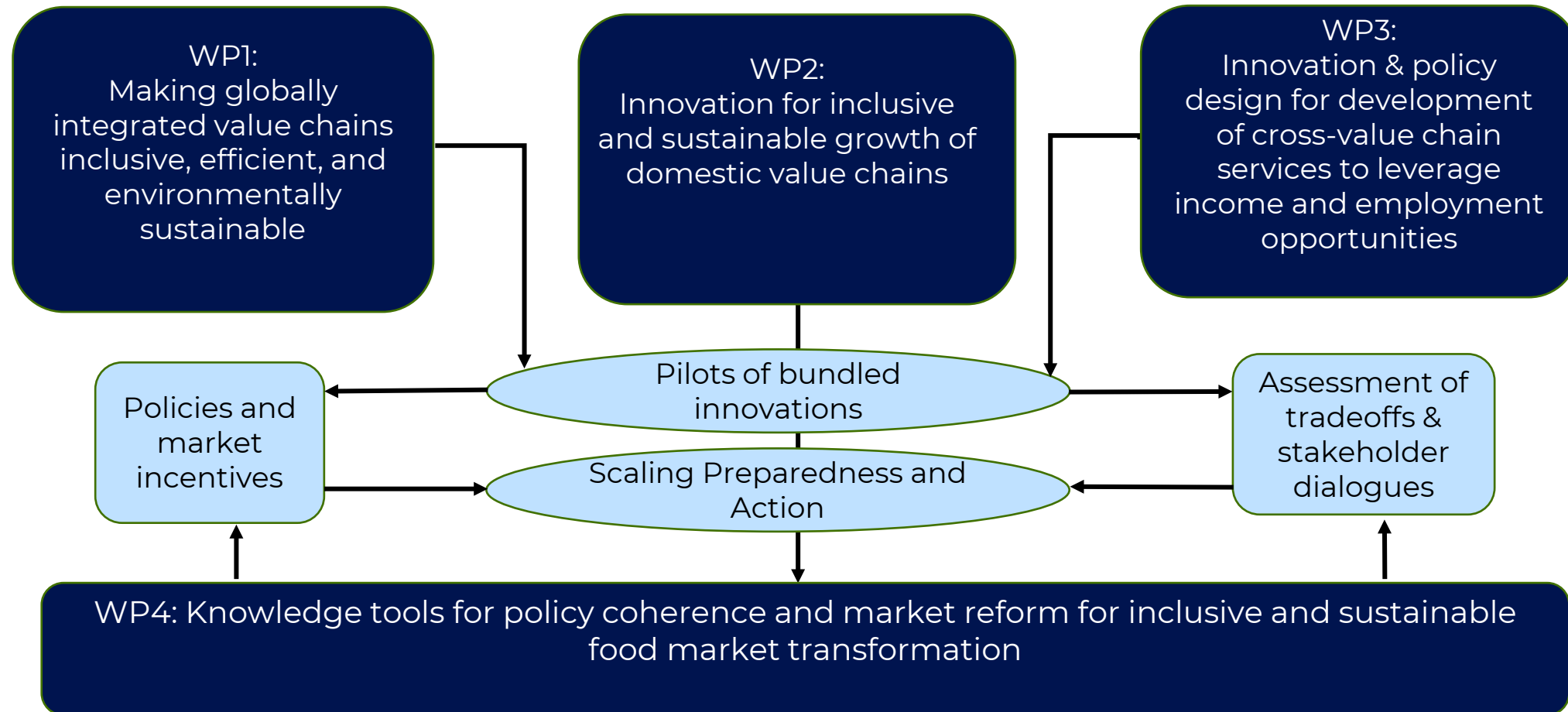
Model-based scenario analysis and stakeholder dialogues for policy coherence

03

Work Packages



Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability

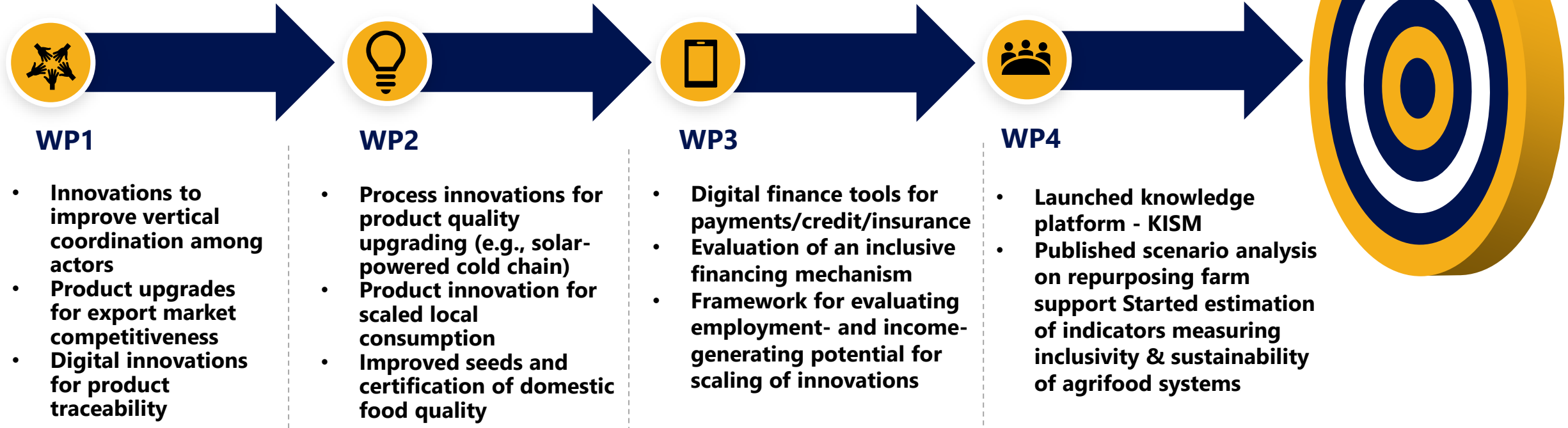


Progress since 2022



Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability

Completed scoping studies after stakeholder workshops, group discussions, partner reviews to design bundled innovations across focus countries



Implementation is overall on track. The evaluation design and implementation of the piloted innovations in are expected to be completed in 2023

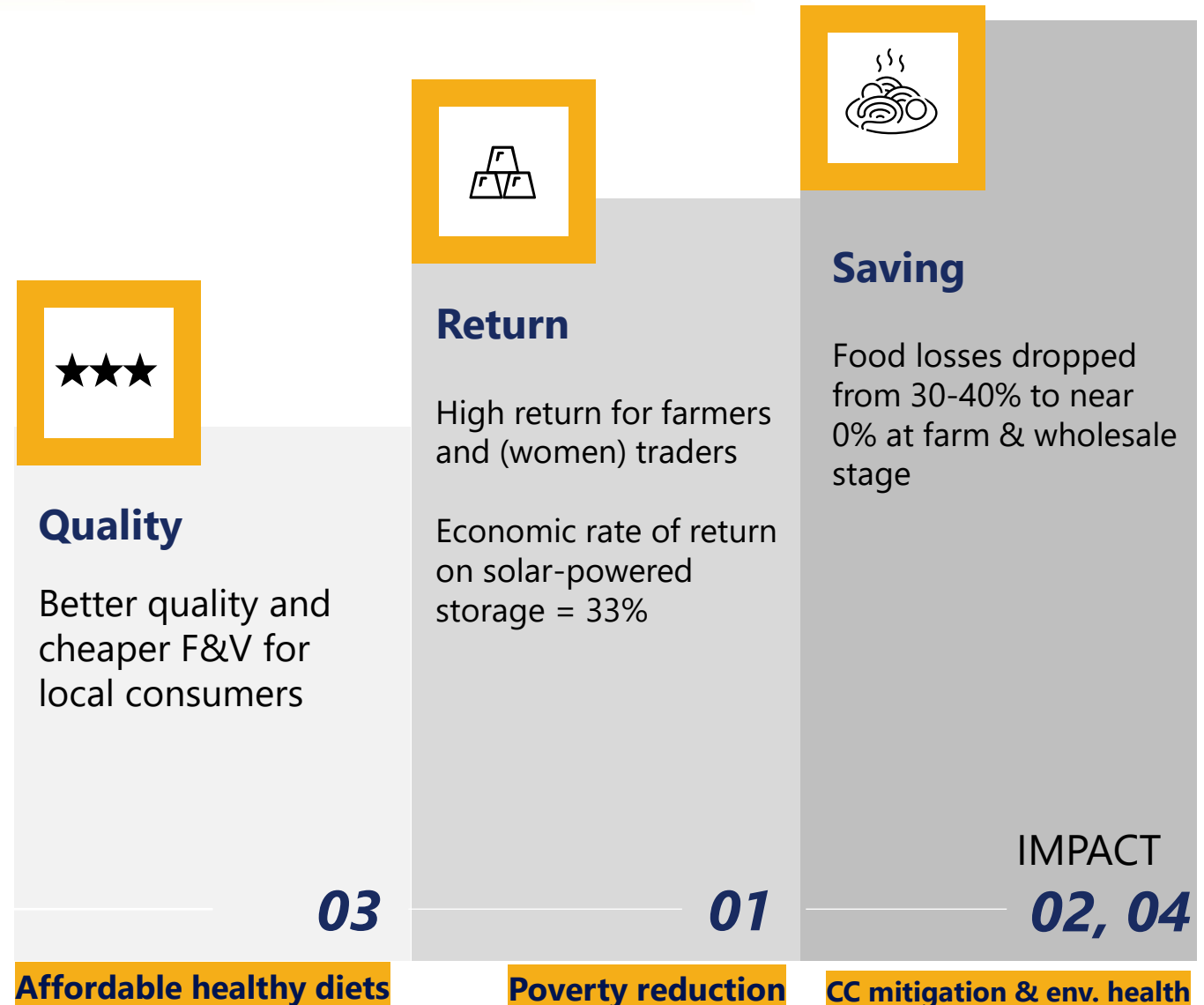
Nigeria

Bundled innovation in fruits and vegetables value chains

- Private intermediaries (**East-West Seeds**) provide improved seeds, extension services and quality certification
- Private intermediaries (**Coldhubs** and others) provide solar powered cold storage, drying machines and trucks in Northern Nigeria)
- **Women** of local communities manage rental cold storage units and promote use of crates by farmers and traders
- Analysis of options for **policy support** for scaling



Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability

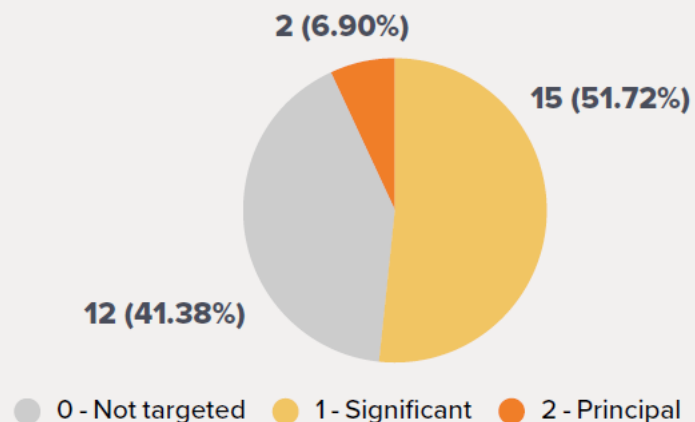


Results



Rethinking Food Markets
and Value Chains for
Inclusion and Sustainability

Results by gender tag

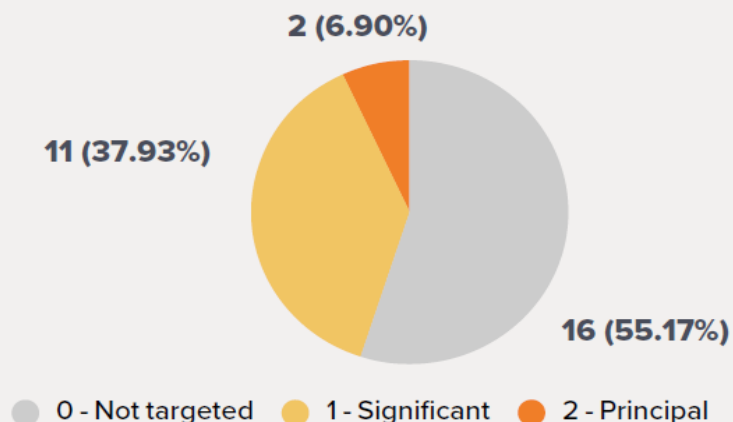


0 = Not targeted: The activity/result does not target gender equality.

1 = Significant: The activity/result contributes in significant ways to gender equality, even though it is not the principal focus of the activity.

2 = Principal: Gender equality is the main objective of the activity/result and is fundamental in its design and expected results.

Results by climate change tag



0 = Not targeted: The activity does not target climate mitigation, adaptation, and climate policy goals of the CGIAR as put forward in its strategy.

1 = Significant: The activity contributes in significant ways to either one 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.

2 = Principal: The activity is principally about meeting either one of the three CGIAR climate-related strategy objectives — namely, climate mitigation, climate adaptation, and climate policy, and would not have been undertaken without these objectives.



Initiative researchers with coffee producers in Honduras.
Photo credit: Jenny Wiegel



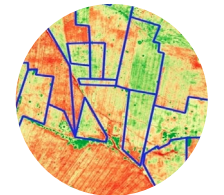
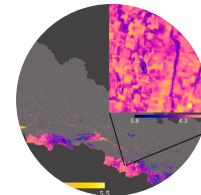
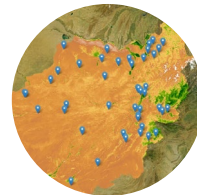


INITIATIVE ON
Digital Innovation

21 June 2023

CGIAR Research Initiative on **Digital Innovation**

Lead **Jawoo Koo (IFPRI)** & Co-lead **Andrea Gardeazabal (CIMMYT)**



Presented to the **CGIAR Systems Council**

Why Research on Digital Innovation?

Digital technologies are not ready to transform agri-food systems.

- “ICTs are increasing income, reducing poverty, and strengthening rural resilience. However, the **impact is highly uneven**.”
- “There is a prevailing **disconnect between pilots and scaling-ups** that merits further evaluations.”
- “**Fragmented data governance** arrangements weaken farmers’ willingness to adopt digital solutions.”
- “There is a need for more **systematic assessments of both successes and failures**.”
- “The new innovation agenda rests on strong **user-centeredness and problem-orientation**.”



Contents lists available at [ScienceDirect](#)

Food Policy

journal homepage: www.elsevier.com/locate/foodpol







Digital tools and agricultural market transformation in Africa: Why are they not at scale yet, and what will it take to get there?*

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INTERNATIONAL JOURNAL OF AGRICULTURAL SUSTAINABILITY
 2021, VOL. 19, NOS. 5–6, 549–565
<https://doi.org/10.1080/14735903.2020.1738754>





OPEN ACCESS

Tapping the full potential of the digital revolution for agricultural extension: an emerging innovation agenda

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Our Focus

CORE RESEARCH QUESTION

How can digital innovations accelerate the transformation of food, land, and water systems in the global South inclusively and sustainably?

OBJECTIVE

Generate evidence, innovative use of data and digital technologies, and design solutions to advance inclusive and sustainable agri-food systems transformation.

CHALLENGE AREA	RESEARCH QUESTION
The Digital Divide	In what ways can policymakers and investors effectively address the digital divide in infrastructure, information, and digital capabilities?
Inadequate Information	How can digital services and information systems improve their services and products to be more timely, accurate, actionable, and inclusive?
Limited Capabilities	What capacity-building strategies can CGIAR, NARES, and partners use to enhance the digital skills and capabilities of women and youth ?

EOI Outcome Tracker

OUTCOME	PROGRESS
Improved digital skills of users	Collaborating with three NGOs and four Initiatives/Programs to scale their work through innovative digital technologies/solutions.
Strengthened organizations	Engagement with nine partner organizations to assess their organizational capabilities and collaborate to strengthen technical capacities.
Equitable resource allocations	Co-developing digital twin case studies with two water management authorities , focusing on environmental flows, water quality, and drought management.
Strengthened information systems	Six case studies being developed for rice systems, food flows and diet, livestock value-chain, Limpopo basin, smallholders farming, and climate adaptations.
Gender-responsive services	Co-designing digital inclusion case studies with three organizational partners , applying tools developed for the Responsible Digital Inclusion Framework.
Strengthened digital ecosystems	Developed four strategic partnerships with key stakeholder groups. Successfully secured resources to organize two global ICT for Agriculture events in 2023–2024.

Initiative Structure



FLAGSHIP 1 Digital Co-lab

WP 1

Enabling environment

WP 5

Platforms & Services



OUTCOME 3

Improved digital skills

OUTCOME 6

Organizational capabilities



CHALLENGE 1

Digital capabilities



FLAGSHIP 2 Digital Twin

WP 3

Systems modeling

WP 4

Real-time monitoring



OUTCOME 4

Equitable natural resources

OUTCOME 5

Information systems



CHALLENGE 2

Inadequate information



FLAGSHIP 3 Inclusion Framework

WP 2

Digital inclusion



OUTCOME 1

Stronger digital ecosystems

OUTCOME 2

Gender-responsive services



CHALLENGE 3

Digital divide



FLAGSHIP 1 Digital Co-Lab

Fostering research, collaboration, and skills training
for enabling digital innovation in agri-food systems



INITIATIVE ON
Digital Innovation

Responsible innovation & behavioral research

- Data sharing
- Data use / re-use
- Data ownership
- Data science / AI
- Citizen science & crowdsourcing

Digital innovation
case studies

Peer-to-peer
collaboration
& training

Gender-responsive,
equitable, inclusive, and
sustainable digital
innovations

- South-South knowledge
- Mentorship
- Co-creation
- Resource mobilization
- Business models

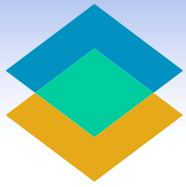
Data Wallet

Self-Sovereign Identity for data ownership



Outputs

- Data wallet (SSI) developed, tested and deployed in Mexico
- Learnings and guidance for scaling
- Research paper on data ownership, balance of power and DI potential + risks for small holder farmers

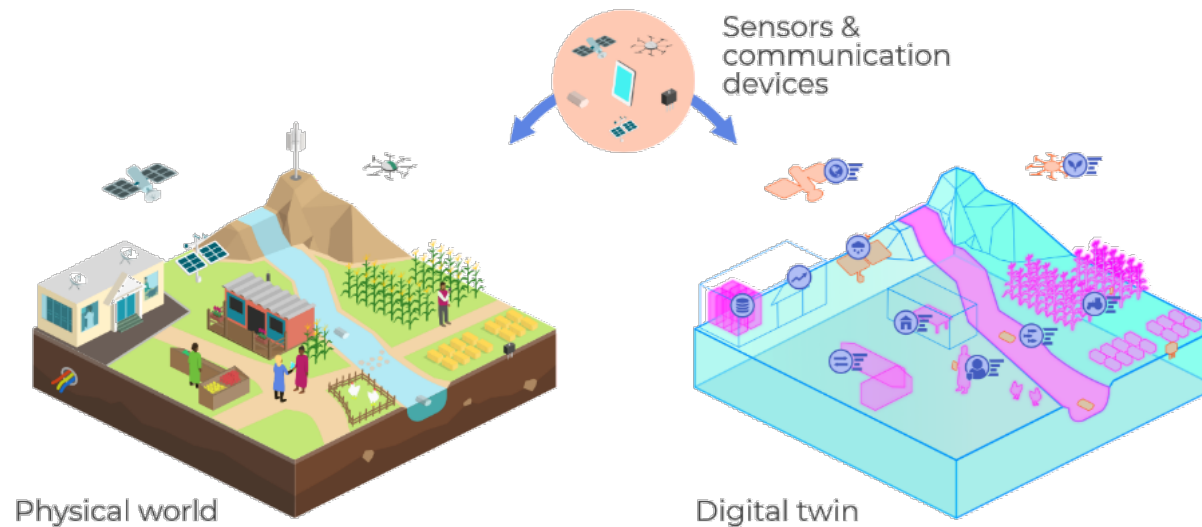


FLAGSHIP 2 Digital Twin

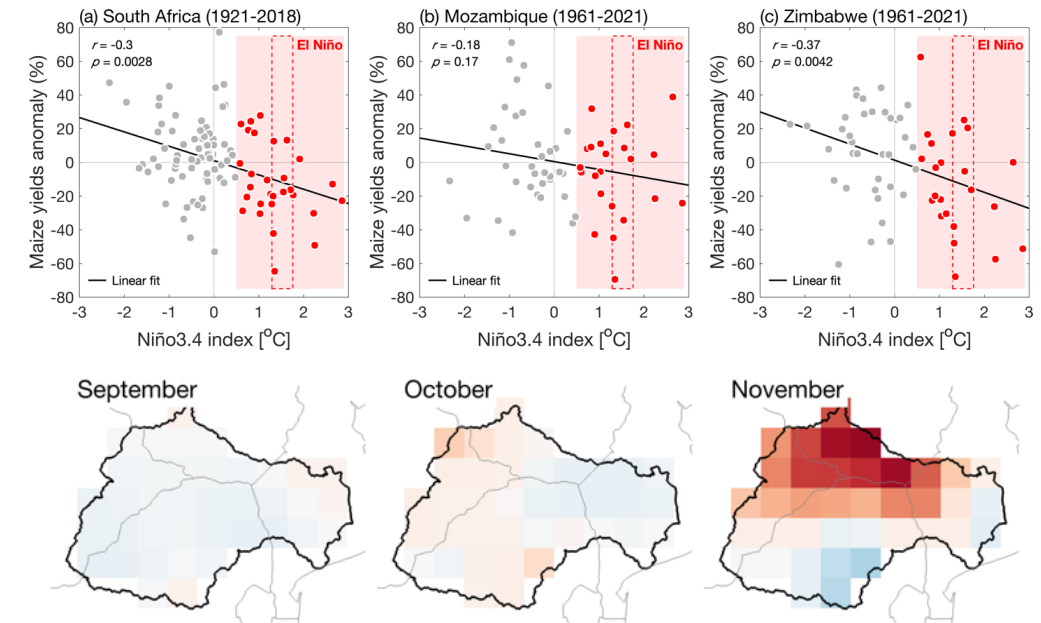


INITIATIVE ON
Digital Innovation

Real-time monitoring for data-driven decision makings



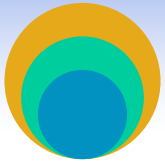
- Each Case Study will produce a whitepaper on the use-case and the reference architecture recommendations.
- We coordinate CGIAR's access to satellite data (Planet), cloud-based compute/storage (AWS), and climate data services.



Source: Montes, *forthcoming*

Digital Twin Case Studies

- Rice Production Systems (Egypt, Kenya)
- Food Flows and Diet (Rwanda, Guatemala)
- Livestock Value-Chain (Kenya)
- Limpopo Basin (Mozambique, South Africa)
- Farming Landscape (Ethiopia, Senegal)



FLAGSHIP 3

Responsible Digital Inclusion Framework



INITIATIVE ON
Digital Innovation

Responsible digital innovation through inclusivity research tools and data



Digital capability needs assessment

- Surveys
- Training programs



Digital inclusivity index in agri-food systems

- Product definition, literature review & stakeholder consultation
- Best practices
- Case studies with partners



Digital inclusion strategies

- Women's participation in digital services & citizen science
- Helping partners to establish responsible digital strategies



Human-centered design clinics

- Workshops and clinics
- Tools (e.g., rapid inclusivity assessment)
- Assessment and partnerships



Training in digital and data skills can bridge the gender divide in agriculture



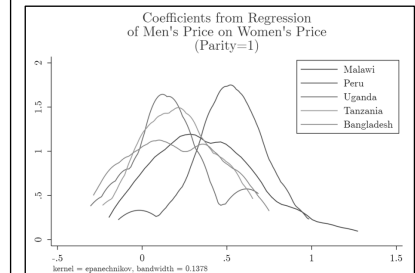
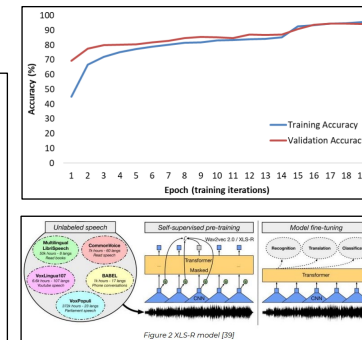
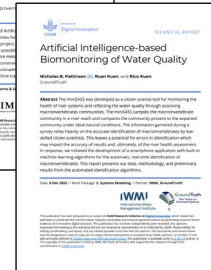
INITIATIVE ON

Digital Innovation



FLAGSHIP 3

INCLUSION FRAMEWORK

[illegible]

- Most agriculture-focused digital tools in Africa are **at pilot stages** with limited evidence of scaling/impacts.
- **Lack of nuanced evidence** from both successful and unsuccessful efforts impedes scaling.

- AI with **transfer learnings** can analyze local African languages with insufficient training data.
- AI with **computer vision algorithms** improves the speed and accuracy of citizen scientists' biomonitoring of water quality.

- Women receive a **lower price than men for agricultural produces** sold at the market.
- Women lack equal access to price information, lowering bargaining power. This **information asymmetry** may be remedied by women's access to mobile phones.

LEADERSHIP TEAM

LEAD	Jawoo Koo IFPRI
CO-LEAD	Andrea Gardeazabal CIMMYT
WP LEADERS	Carlo Azzarri IFPRI
	Simon Langan IWMI
	Niyati Singaraju IRRI
	Chris Dickens IWMI
	Daniel Jimenez Alliance Bioversity-CIAT
	Steve Kemp ILRI
	Sheetal Sharma IRRI
	Ram Dhulipala ILRI



INITIATIVE ON
Digital Innovation



SAVE THE DATES
7-9 Nov 2023



CENTERS ABC, CIMMYT, CIP, IFPRI, ILRI, IRRI, IWMI

PARTNERING INITIATIVES GI: Market Intelligence // RIIs: AgriLAC Resiliente, Diversification in East and Southern Africa, Transforming Agrifood Systems in South Asia // RAFS: Excellence in Agronomy // ST: National Policies & Strategies, ClimBeR, Rethinking Markets, NEXUS Gaines, Foresights

INNOVATION PARTNERS NASA Harvest, Rural Development Administration (Korean Gov't), . Indian Council for Agricultural Research - Indian Agricultural Research Institute (ICAR-IARI), DARPA/World Modelers, Centre for Development of Advanced Computing (CDAC), UNICEF // Digital Green, HarvestPlus, The Agri Collaboratory // Amazon Web Services, Impact Observatory, SCiO Systems, Bluenumber, GroundTruth, Open Data Kit, Turn.io, EarthBlox // American Univ., U. Florida, U. Twente/ITC, U. Mpumalanga, Sri Sri University (India), Delhi Technological University (DTU), University of KwaZulu-Natal, University of North-West

DEMAND PARTNERS The Limpopo Watercourse Commission (LIMCOM), Inkomati Catchment Management Agency (IUCMA), Kenya Agricultural and Livestock Research Organization (KALRO), The National Potato Council of Kenya (NPCK), Water Research Commission (South Africa), Rwanda Ministry of Agriculture (MINAGRI), Mozambique Ministry of Agriculture (MADER), Guatemala Ministry of Agriculture (MAGA), India Meteorological Department (IMD), World Food Program (WFP), Action Against Hunger, Universidad Cunori (Guatemala), African Dairy Genetic Gains (ADGG)