



# Better Diets and Nutrition Program

## Full design document

November 15, 2024

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## ***“Eating is an agricultural act”***

*Wendell Berry, agricultural philosopher, 1990*

“I begin with the proposition that eating is an agricultural act. Eating ends the annual drama of the food economy that begins with planting and birth. Most eaters, however, are no longer aware that this is true. They think of food as an agricultural product, perhaps, but they do not think of themselves as participants in agriculture. They think of themselves as “consumers.” If they think beyond that, they recognize that they are passive consumers. They buy what they want — or what they have been persuaded to want — within the limits of what they can get. They pay, mostly without protest, what they are charged. And they mostly ignore certain critical questions about the quality and the cost of what they are sold: How fresh is it? How pure or clean is it, how free of dangerous chemicals? How far was it transported, and what did transportation add to the cost? How much did manufacturing or packaging or advertising add to the cost? When the food product has been manufactured or ‘processed’ or ‘precooked,’ how has that affected its quality or price or nutritional value?”

Read more: [Wendell Berry: The Pleasures of Eating | ecoliteracy.org](https://ecoliteracy.org)

## List of acronyms

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A4NH	CGIAR Research Program on Agriculture for Nutrition and Health (2012–2021)
Alliance	Alliance of Bioversity International and the International Center for Tropical Agriculture
ANH Academy	Agriculture, Nutrition and Health Academy
ANLP	African Nutrition Leadership Programme
AoW	Area of Work
ASF	animal-source food
AU	African Union
BCC	behavior change communication
CAADP	Comprehensive Africa Agricultural Development Programme
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
CIFOR	Center for International Forestry Research
CIP	International Potato Center
CoP	community of practice
COP	Conference of the Parties
CSO	civil society organization
F&V	fruits and vegetables
FAO	Food and Agriculture Organization of the United Nations
FGD	focus group discussion
FIES	Food Insecurity Experience Scale
FRESH	CGIAR Research Initiative on Fruits and Vegetables for Sustainable Healthy Diets (2022–2024)
FST	food systems transformation
FST-NAP	food systems transformation national action plan
GAP	good agricultural practices
GHG	greenhouse gas
HLO	high-level output
HLPE	High-Level Panel of Experts on Food Security and Nutrition
IA	Impact Area
IA	impact assessment
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics

IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IRRI	International Rice Research Institute
IWMI	International Water Management Institute
LMIC	low- and middle-income country
MDD-W	Minimum Dietary Diversity-Women
MEL	monitoring, evaluation, and learning
MELIA	monitoring, evaluation, learning, and impact assessment
MSME	micro, small, and medium enterprise
NARES	national agricultural research and extension services
NCD	noncommunicable disease
NDC	nationally determined contribution
NGO	non-governmental organization
NSSP	nutrition-sensitive social protection
PNR	perishable nutrient-rich
RFM	CGIAR Research Initiative on Rethinking Food Markets (2022–2024)
SAPLING	CGIAR Research Initiative on Sustainable Animal Productivity (2022–2024)
SBCC	social behavior change communication
SCA	source(s) of comparative advantage
SDGs	Sustainable Development Goals
SHD	sustainable healthy diets
SHiFT	CGIAR Research Initiative on Sustainable Healthy Diets (2022–2024)
SSB	sugar-sweetened beverage
SUN	Scaling Up Nutrition
TAFSSA	CGIAR Regional Initiative on Transforming Agrifood Systems in South Asia (2022–2024)
TASF	terrestrial animal-source food
TOC	theory of change
ToT	training of trainers
TPP	target product profile
UNFSS	United Nations Food Systems Summit
UPF	ultra-processed food
WP	Work Package
UN	United Nations

# Glossary

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**Bioactive compounds:** compounds found in some crops (e.g., flavonoids, polyphenols) that have actions in the body that may promote good health.

**Bioavailability:** the extent to which a nutrient is available to be absorbed and used by the body.

**Climate-smart staples:** crops bred to maintain or improve yield and nutrient density under conditions of climate volatility.

**Complementary foods:** foods and/or beverages (liquids, semisolids, and solids) other than human milk or infant formula provided to an infant or young child to provide nutrients and energy.

**Diet-related noncommunicable diseases (NCDs):** NCDs include cardiovascular diseases (such as heart attacks and stroke, which are often linked with high blood pressure), certain cancers, and type 2 diabetes. Unhealthy diets and poor nutrition are among the top risk factors for these diseases globally.

**Double burden of malnutrition:** the coexistence of undernutrition with overweight, obesity, or diet-related noncommunicable diseases within individuals, households, and populations, and across the life course.

**Food environment:** the interface that mediates the acquisition of foods to people within the wider food system ([Turner et al. 2018](#)).

**Food systems:** all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation, and consumption of food, and the output of these activities, including socioeconomic and environmental outcomes.

**Food systems transformation:** fundamental changes and enhancements in the institutions, infrastructure, regulations, and markets that shape food systems, and in the resources invested in those systems, that make them more equitable and sustainable.

**Food systems transformation national action plan (FST-NAP):** a national roadmap for food system transformation developed under the aegis of the United Nations Food Systems Summit process. This is the policy framework most relevant for food system transformation at a national scale.

**Health-enhancing staples:** foods that influence specific physiological functions in the body, thereby providing benefits to health, well-being or performance, beyond regular nutrition, and are marketed and consumed for this value-added property.

**Healthy foods:** foods that belong to a healthy diet and promote individual health and well-being. Examples are fruits, vegetables, nuts, seeds, and legumes.

**Low glycemic index (GI) foods:** foods that are slower to raise an individual's blood sugar levels relative to foods with moderate or high scores on the glycemic index.

**Market systems actors:** businesses that work in one or more agri-food value chains, advertisers, technology providers for agri-food value chains, and financial companies that lend to agri-food businesses.

**Micro, small, and medium enterprises (MSMEs):** enterprises that fall below threshold amounts in two of three definitional categories (employees, assets, and annual sales), as defined by the [International Finance Corporation](#).

**Nutrient-dense staples:** staple foods that are high in nutrients but relatively low in calories. Nutrient-dense foods contain vitamins, minerals, complex carbohydrates, lean protein, and healthy fats.

**Policy communities:** all stakeholders who contribute to the evolution of all aspects of a policy agenda. Policy communities include policymakers as well as all others who engage in the recognition of key policy problems, who identify solutions and contribute to decision-making processes in diverse ways. In addition to policymakers, policy communities include researchers, practitioners, funders, media, civil society, and other groups engaged around a policy topic.

**Solutions:** potentially applicable technologies, products, practices, processes, programs, policies, or a combination of these.

**Sustainable healthy diet:** a dietary pattern that promotes all dimensions of individual health and well-being; has low environmental pressure and impact; is available, accessible, affordable, safe, desirable, and equitable; and is culturally acceptable (based on [FAO and WHO 2019](#)).

**Unhealthy foods:** foods that when eaten in excess form a risk for individual health and well-being and do not belong to a healthy diet. Examples are foods with high sugar, high fat, and/or high salt content.

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Name (alphabetical order)	CGIAR Center	Role in proposal design
Adam Kennedy	IFPRI	Project management
Agnes Quisumbing	IFPRI	Extended Writing Team
Alan de Brauw	IFPRI	Core Writing Team
Amanda Wyatt	IFPRI	Project management and core Writing Team
Amy Ickowitz	CIFOR-ICRAF	Extended Writing Team
Anna Lartey	University of Ghana	External appointed expert
Aulo Gelli	IFPRI	Extended Writing Team
Bendula (Ben) Wismen	WorldFish	Core Writing Team
Busie Maziya-Dixon	IITA	Core Writing Team
Chalmers Mulwa	CIP	Core Writing Team
Christine Chege	Alliance	Core Writing Team
Christophe Béné	IFPRI	Extended Writing Team
Danielle Resnick	IFPRI	Extended Writing Team
Danny Hunter	Alliance	Extended Writing Team
Deanna Olney	IFPRI	Core Writing Team*
Edgar Twine	AfricaRice	Core Writing Team*
Elyse Iruhiye	IFPRI	Extended Writing Team
Emily Ouma	ILRI	Core Writing Team
Frederick Grant	CIP	Core Writing Team*
Inge Brouwer	IFPRI	Core Writing Team
Jan Low	Independent	External appointed expert
Janet Hodur	CGIAR	Core Writing Team
Jef Leroy	IFPRI	Extended Writing Team
Jenny Ekman	Applied Horticulture Research	Extended Writing Team
Jenny Wiegel	Alliance	Extended Writing Team
Jordan Chamberlin	CIMMYT	Extended Writing Team
Julia de Bruyn	World Vegetable Center	Core Writing Team*

Name (alphabetical order)	CGIAR Center	Role in proposal design
Julius Juma	CIP	Core Writing Team
Julius Manda	IITA	Extended Writing Team
Kate Ambler	IFPRI	Core Writing Team
Kavitha Kasala	ICRISAT	Core Writing Team
Lilia Bliznashka	IFPRI	Extended Writing Team
Lorena Danessi	IFPRI	Project management
Marie Ruel	IFPRI	Extended Writing Team
Marion Herens	WUR	Extended Writing Team
Mark Lundy	Alliance	Core Writing Team*
Matty Demont	IRRI	Core Writing Team*
Melanie Connor	IRRI	Core Writing Team
Mercy Lunga'ho	IITA	Core Writing Team*
Michiel van Dijk	WUR	Extended Writing Team
Mukani Moyo	CIP	Core Writing Team
Namukolo Covic	ILRI/CGIAR	Co-convenor*
Neha Kumar	IFPRI	Extended Writing Team
Nese Sreenivasulu	IRRI	Core Writing Team*
Nicholas Minot	IFPRI	Extended Writing Team
Padmaja Ravula	ICRISAT	Extended Writing Team
Pepijn Schreinemachers	World Vegetable Center	Extended Writing Team
Purnima Menon	IFPRI/CGIAR	Convenor
Ravi Singh	CIMMYT	Extended Writing Team
Ricardo Hernandez	Alliance	Extended Writing Team
Rob Vos	IFPRI	Core Writing Team
Roland Schafleitner	World Vegetable Center	Extended Writing Team
Sarah Kariuki	CIMMYT	Core Writing Team*
Shalini Roy	IFPRI	Extended Writing Team
Siliva Alonso	ILRI	Extended Writing Team
Stepha McMullin	CIFOR-ICRAF	Core Writing Team*
Sunny Kim	IFPRI	Extended Writing Team
Victor Afari-Sefa	ICRISAT	Core Writing Team*
Wanjiku N Gichohi	WorldFish	Core Writing Team*

\*Served as a CGIAR Focal Center Representative for all or part of the proposal process.

# 1. Executive summary

Nearly three billion people worldwide cannot afford a healthy diet. The Better Diets and Nutrition Program tackles a foundational outcome area in transforming food, land, and water systems — ensuring food systems transformation (FST) delivers better diets and nutrition for all, in support of [global nutrition goals](#).<sup>1</sup> Systems thinking will be applied to challenges on the availability, accessibility, affordability, and desirability of healthy diets for urban and rural populations in low- and middle-income countries (LMICs) influenced by [megatrends shaping diets and nutrition](#).<sup>2</sup>

Anchored in the [High-Level Panel of Experts \(HLPE\) food systems framework](#), this Program will generate evidence of transformative and catalytic food system solutions bringing diets, consumers, and their food environments to the forefront.<sup>3</sup> Joint analyses with supply-side Programs will foster a demand pull to support our partners' transition to food systems that support sustainable healthy diets (SHD) and better nutrition outcomes without negatively affecting critical outcomes regarding income, employment, social equity, and environmental sustainability.

Research and engagement in the target countries will help to realize four outcomes by 2030:

- Market system actors provide safe, affordable, and attractive SHD while ensuring high-quality employment for women across five countries.
- Consumers increase demand for and consumption of SHD across five countries.
- Coalitions of food system actors across 10 countries lead the effective implementation of solutions and policy frameworks that deliver SHD while balancing environmental and social needs.
- Global multilateral networks incorporate diets and nutrition in a balanced way in a convergence agenda.

As the primary CGIAR Program with a consumer-facing view to improving diets, this Program will contribute first and foremost to CGIAR's *Nutrition, Health, and Food Security* Impact Area (IA). The Program will make less significant but meaningful contributions to the IAs on *Poverty Reduction, Livelihoods and Jobs; Gender*

*Equality, Youth and Social Inclusion; and Environmental Health and Biodiversity*. The Program includes new and emerging research on climate change designed to contribute to the IA on *Climate Adaptation and Mitigation* in the longer term through changes in consumers and markets.<sup>4</sup>

This Program builds on the work of four CGIAR Research Initiatives — Sustainable Healthy Diets through Food Systems Transformation (SHiFT), Fruits and Vegetables for Sustainable Healthy Diets (FRESH), Rethinking Food Markets (RFM), and Sustainable Animal Productivity (SAPLING) — and the [Nutrition, Health and Food Security Impact Platform](#). Additional evidence and partnership experience come from the CGIAR Research Initiatives on Resilient Cities Aquatic Foods, Asian Mega-Deltas, and Transforming Agrifood Systems in South Asia (TAFSSA).

Work that was not a prominent part of CGIAR's 2022–2024 Portfolio but builds on pooled and bilateral research is now part of this Program. This includes topics such as end-to-end solutions for aquatic and animal foods, consumer-level aspects of biofortified and health-enhancing staples, leveraging actions in multisectoral systems to tackle malnutrition in all its forms and contribute to gender and social equity goals, and elevating and integrating nutrition and SHD considerations across the CGIAR Portfolio.

The resulting Program portfolio is organized around six Areas of Work (AoWs) on (1) consumers and food environments, (2) market systems, (3) end-to-end solutions, (4) biofortified and health-enhancing staples, (5) multisectoral systems, and (6) transformative leadership.

In the Program's Inception Phase, the AoWs will be refined to add detailed activities with partners in 18 countries and relevant targets will be selected and set. Engagement in relevant policy processes (e.g., the [United Nations Food System Summit \[UNFSS\]](#) and the next 10-year [Comprehensive Africa Agriculture Development Program \[CAADP\]](#); high-level events (e.g., [Nutrition for Growth Summit](#)); and regional and global platforms and communities of practice (CoP) (e.g., [Scaling up Nutrition \[SUN\] Movement](#), [Delivering for Nutrition event/platform](#), and the [Agriculture, Nutrition, and Health Academy \[ANH Academy\]](#)) will be an integral part of the strategy to ensure that this Program is responsive to stakeholder priorities around diets and nutrition.

## 2. High-level vision in response to challenges and megatrends

### 2.1. Challenges and megatrends

Current food systems are failing to provide healthy diets for billions of people. Almost three billion people worldwide cannot afford healthy diets. Shortfalls in the availability of nutrient-rich foods are common, especially in LMICs. Urbanization and changes in agri-food systems are changing people's consumption patterns in favor of cheap, highly processed, nutrient-poor foods. Climate vulnerability, conflict, and economic shocks are exacerbating these challenges to diet quality and nutrition outcomes.<sup>2</sup>

The result is an epidemic of unhealthy diets that contribute to all forms of malnutrition, including undernutrition, micronutrient deficiencies, overweight, obesity, and diet-related noncommunicable diseases (NCDs), and impose heavy economic costs.<sup>5</sup> Undernutrition alone can cost up to 16% of gross domestic product.<sup>6</sup>

Better Diets and Nutrition addresses five key drivers of diet quality and nutrition:

1. **Desirability.** Changing consumption patterns, poor marketing practices, lack of convenience, and other factors deter people from choosing healthy foods.
2. **Agency.** People need the ability to make positive decisions about their food and engage in shaping food system policies.
3. **Affordability.** Low incomes and high food prices make healthy diets unaffordable.
4. **Accessibility.** Many cannot regularly and conveniently access diverse, healthy foods.
5. **Availability.** Insufficient year-round availability of nutrient-rich foods limits access and raises costs.

### 2.2. High-level vision

Better Diets and Nutrition is anchored in the [HLPE food systems framework](#).<sup>3</sup> It takes a full structural view of food systems and organizes its work across the entire food system — from consumer to producer (**Figure 2.1**). As the primary CGIAR Program with a consumer-facing view to improving diets, this Program will contribute first and foremost to the *nutrition, health, and food security* CGIAR IA in key countries and make meaningful contributions to the other IAs. For climate change, it will be through joint work with production facing Programs using a consumer lens to promote SHD considerations.

The Program aims to identify, co-design, and test food system solutions that tackle major constraints to delivering SHD and nutrition impacts. The Program will provide evidence and solutions to strengthen knowledge, coordination, governance, leadership, and investments to make SHD desirable, affordable, accessible, and available, while increasing people's agency to attain them. These actions align with CGIAR's vision of diverse, healthy, safe, sufficient, and affordable diets; improved livelihoods; greater social equality; and lower environmental impacts. Examples of this Program's anticipated scientific contribution are listed below.

- **Desirability and agency:** Promote and support SHD through consumer-focused approaches, community, food environment, and market solutions.
- **Affordability:** Decrease the cost of nutrient-rich foods through increased availability and efficiency while enhancing income opportunities for the poor and leveraging social protection and other policy support.
- **Availability and accessibility:** Deploy nutrient-rich foods (bio-fortified and health-enhancing staples, fruits and vegetables [F&V], and animal and aquatic foods) effectively and identify efficient production, postharvest, and market solutions to close supply-side gaps and strengthen the value chains of these foods.
- **Impact-focused solutions:** Combine efforts across multiple systems to address diet-related challenges, empower women, and tackle water, energy, and fuel constraints, especially for the most vulnerable.
- **Integration and scale:** Strengthen knowledge, capacity, coordination, governance, and investments for better diets and nutrition at the national scale and beyond.

### 2.3. What is new in this Program?

CGIAR's 2022–24 Portfolio was an early effort to take a consumer-facing view and involved extensive diagnostic work; the new Program is much more solution-oriented.

The new and emerging work in this Program that was not a prominent part of the 2022–2024 Portfolio but that builds on legacy pooled and bilateral research will focus on:

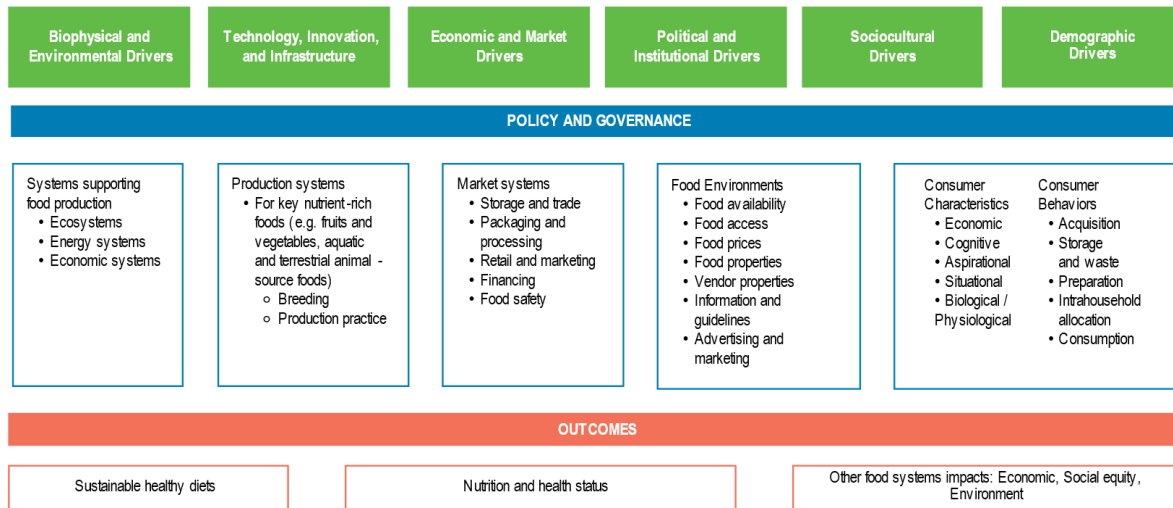
- Assessing the short- and medium-term impacts of the end-to-end solutions on increasing the consumption of aquatic and animal foods. Studies will measure the costs of nutritious diets involving aquatic foods and test market interventions to reduce these costs and address consumption constraints of animal-source foods.
- Strengthening the consumer-level impact of biofortified and health-enhancing staples by focusing on marketing, scaling, and impact research. New research will include efficacy trials on biofortified crops, such as iron-potato and calcium-finger millet, and collaborations with school meal programs and nutrition-sensitive social protection (NSSP) systems.
- Leveraging actions in multisectoral systems, such as schools, health services, and NSSP, to tackle malnutrition in all its forms, build synergies with FST actions and contribute to equity goals.
- Elevating and integrating nutrition and SHD considerations across the Portfolio, per the recommendation of the 2024 evaluation of the CGIAR Independent Evaluation and Advisory Service (IEAS).<sup>4</sup>

The new and emerging topics in this Program that build on the 2022–2024 Portfolio will expand research on several topics that were highlighted in the IEAS evaluation.<sup>4</sup> This will include work on:

- Food safety issues across the food system, consumer perspectives, and identifying and testing solutions to reduce cases of foodborne illness in the Program's key countries.
- Associations between SHD and climate change and the effects on the environment, with emphasis on finding and testing solutions that create synergies between these areas.

- Identifying and testing solutions related to quality assurance, logistics, and financial innovations for efficient and inclusive market systems development across more countries.
- The role of policies and trade in promoting SHD, the availability of unhealthy foods, and strategies to measure and prevent food loss and waste.
- Expanding evaluation platforms and initiated end-to-end solutions for F&V to the Philippines and Benin.
- Transitioning support for food systems transformation national action plans (FST-NAPs) to sub-national levels in step with country demand, adding more capacity sharing adjusted to local contexts.
- Engaging partners to integrate the SHD and nutrition agendas with food security and climate adaptation plans at national, regional, and global scales and to contextualize the SHD and nutrition agendas in CGIAR research.
- Transformative nutrition leadership development with a food system lens within CGIAR and among stakeholders at national, regional, and global levels.

Figure 2.1. Sustainable Food Systems Framework for Better Diets and Nutrition



Source: Adapted from the publication of the *High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security: Food Security and Nutrition: Building a Global Narrative Towards 2030* (Rome: 2020).

### 3. Evidence-based and demand-led prioritization

Priority geographies for this Program were chosen through a multipronged approach. The top 20 countries were identified through an open process. CGIAR researchers submitted relevant research ideas [online](#) (Appendix 5). After reviewing the submitted ideas, the Writing Team added one country from the Middle East and North Africa region (Egypt) and three Small Island Developing States (Fiji, Solomon Islands, Timor-Leste) for geographical inclusivity. The team then reviewed the state of nutrition, diets, food system drivers, and progress on FST in these countries to narrow the list to a set of countries prioritized for country integration (Table 3.1).

Data on malnutrition, dietary practices, and key social, economic, and food system drivers in the first list of 24 countries were drawn from the [Food Systems Dashboard](#), the [United Nations \(UN\) Food Systems Coordination Hub](#), the [Food Systems Countdown Initiative](#), and the Food and Agriculture Organization of the United Nations (FAO). The team focused on a narrow set of indicators pertaining to diet and nutrition outcomes and a subset of drivers to inform prioritization. Data tables can be found in [Appendix 1](#).

#### State of nutrition, diets, and food system drivers

All forms of malnutrition persist in the countries for which analyses were conducted, posing multiple threats to societal progress. Some countries (Benin, Egypt, and the Solomon Islands) carry a substantial burden of all three forms of malnutrition targeted by the Sustainable Development Goals (SDGs) — child stunting, child wasting, and adult overweight — while other countries face higher burdens of adult overweight, indicating a shift in malnutrition profile and likely reflecting changing lifestyles and potential impacts of urbanization. Notably, people in all prioritized countries face significant micronutrient deficiencies.

Improving diet quality, a key CGIAR goal, faces major widespread challenges. The share of women meeting minimum dietary diversity targets, measured by the indicator [Minimum Dietary Diversity-Women](#) (MDD-W), ranges from a low of 24% in Ethiopia to a high of 89% in Viet Nam. The challenges for child dietary diversity are also substantial: only 13% of children in Ethiopia meet minimum dietary diversity targets, and in most targeted countries this share is in the 20–30% range, with a few countries at the higher end (Sri Lanka and Viet Nam). Other indicators of dietary risk are stark as well: more than one-third and one-fourth of adults do not consume any F&V in Ethiopia and India, respectively. In nearly every country in the world, even when people eat at least some F&V, consumption is far below recommended levels. These dietary risks are underpinned by the massive challenges of food insecurity. The prevalence of food insecurity in priority countries, measured using the [Food Insecurity Experience Scale](#) (FIES), ranges from a low of 9% in Viet Nam to a high of 82% in Malawi.

The diet-related risk of NCDs is highest in Guatemala, Honduras, the Philippines, and Viet Nam, making these high-priority contexts for addressing dietary challenges that many other LMICs increasingly face. Finally, sugar-sweetened beverage (SSB) consumption — a critical contributor to poor diets and nutrition outcomes — is also high among adults in several target countries, ranging from 7% in Sri Lanka to more than 40% in Guatemala, Honduras, and the Philippines.

The diversity in nutrition and diet outcomes provides critical learning opportunities for countries at various stages of the transition of the food, social, and economic systems that drive change.

### Food systems transformation progress

All of the target countries show a good level of preparedness to work toward FST for SHD. Based on limited information and data, all countries have a national FST pathway and most (21 out of 24) provided [statements for the 2021 UNFSS](#). About three-quarters of the selected countries expressed an ambition to achieve healthy diets and five countries (Ethiopia, Ghana, Nigeria, Uganda, and Zambia) indicated being frontrunners for the [Coalition of Action on Healthy Diets from Sustainable Food Systems for Children and All](#).

### Potential for the impact of research

The greatest impact of this Program will come from countries where the Program can bring the entire Portfolio of CGIAR research on diets and nutrition to bear, depending on the availability of

resources to support these efforts. The Program aims to target settings where research and partnerships can build on the presence of in-country CGIAR staff and existing or anticipated partnerships across CGIAR Centers, where pathways have emerged from Initiatives, and where there are bilaterally funded programs, strong research and impact partnerships, and entry points into food systems and nutrition coalitions and multi-stakeholder groups. All prioritized countries have above-average civil society participation, offering a good opportunity for inclusive dialogue. [Viet Nam](#), for example, which has shown strong capacity to reflect, adjust, and propose important course corrections in policies, is seen as a regional and global reference point and is considered highly likely to implement what is proposed. This is an opportunity for CGIAR (beyond this Program) to support an important partner country to effectively transition to a different development trajectory in line with the CGIAR system-level outcome and impact goals.

In-country partners suggested during the Program’s development process include national research institutions, implementation or scaling partners, and governments. Based on the above analyses, the 11 potential high-priority countries include Bangladesh, Benin, Ethiopia, India, Honduras, Kenya, Nigeria, Philippines, Sri Lanka, Tanzania, and Viet Nam (**Table 3.1**). In these countries, the Program is already poised to deliver impactful research cutting across the Program, with key enabling factors including connections to government processes.

**Table 3.1.** Key Enabling Factors for the Top Eleven Priority Countries

Country	CGIAR staff presence in country	Strong Initiative momentum*	Bilaterally funded work in country	Strong bilateral partnerships	Potential for impact through presence, partnerships, and coalitions
Bangladesh	Yes	Yes RFM, SHiFT	Yes	Yes	Medium, due to political conditions
Benin	Yes	Yes FRESH	Yes	Yes	High
Ethiopia	Yes	Yes RFM, SHiFT, SAPLING	Yes	Yes	High
Honduras	Yes	Yes RFM	Yes	Yes	High
India	Yes	Yes	Yes	Yes	High
Kenya	Yes	Yes	Yes	Yes	High
Nigeria	Yes	Yes RFM	Yes	Yes	Medium to high, varying by state
Philippines	Yes	Yes FRESH	Yes	Yes	High
Sri Lanka	Yes	Yes FRESH	Yes	Yes	High
Tanzania	Yes	Yes FRESH	Yes	Yes	High
Viet Nam	Yes	Yes SHiFT, SAPLING	Yes	Yes	High

**Note:** This Program builds primarily on work from SHiFT, FRESH, RFM, SAPLING, and the Nutrition Impact Platform. The Platform is not shown in the table because it did not engage at country level.

## 4. Comparative advantage

The Better Diets and Nutrition Program proposes 11 high-level outputs (HLOs) designed to deliver impacts along three pathways: (1) testing and scaling innovations, (2) strengthening capacity, and (3) supporting effective policies for large-scale change (**Appendix Table A1.1**).

Seven of the Program's HLOs center on potential solutions identified in AoWs 1–5 (**Appendix Table A2.1**): (#1) consumer-oriented food systems solutions, (#2) market-oriented food systems solutions, (#3) end-to-end food systems solutions for perishable nutrient-rich (PNR) foods, (#4) solutions for integrating biofortified and health-enhancing staples into food systems, (#5) multisectoral solutions, (#6) gender transformative solutions, and (#7) climate-sensitive solutions. Although the descriptions of HLOs #1–7 emphasize the testing and evaluation of solutions, these HLOs also encompass the co-design or co-implementation of solutions with partners.

Achieving HLOs #1–7 requires subject matter experts and experienced evaluators (human capital) and long-term collaborations with in-country stakeholders and partners, local presence, and a strong reputation (social capital). Potential partners include national and international universities and research institutions, evaluation firms, private-sector food system operators, as well as, governments, nongovernmental organizations (NGOs), and civil society organizations (CSOs).

Sources of biophysical capital vary across these seven HLOs (**Appendix Table A2.1**). HLOs #3 and #4 will require access to genebanks and other breeding-related facilities. Given CGIAR's extensive network of genebanks and commitment to breeding biofortified staples, CGIAR is well positioned to validate and exploit the nutritional contribution of these biofortified staples, along with other new health-enhancing staples such as low-glycemic cereals, to human health. Additionally, CGIAR's close collaboration with the World Vegetable Center and intended collaboration with other Programs will help support the breeding and production components of the end-to-end approaches for PNR foods.

CGIAR's comparative advantage for HLOs #1–7 is strong, based on its extensive track record working with partners to co-design solutions and using rigorous evaluations to assess impact and cost-effectiveness. Alongside its technical expertise, CGIAR's long-term collaborations and trusted reputation with policymakers, extension services, and implementing organizations such as NGOs, United Nations (UN) organizations, and governments constitute a major source of comparative advantage (SCA) that makes it a stronger option than other potential partners, such as for-profit evaluation firms, that deliver similar HLOs.

HLOs #8–11 relate to all capacity sharing components of the different AoWs and principally for AoW 6. HLO #8, on capacity sharing, requires expertise in applied approaches, methods, and tools and experience in translating concepts into recommended actions (human capital) and documented lessons across multiple country contexts (biophysical capital). Other important SCA include experience with long-term collaborations within and across countries, a local presence, and a strong reputation (social capital). Potential partners include international universities and research

institutes, national universities and research institutes in the target countries, agriculture/health/nutrition extension systems, and international organizations and networks. Traditionally, CGIAR has focused on technical capacity sharing at the individual level. This Program will continue those efforts and expand activities to enhance organizational and leadership skills at both individual and institutional levels. Examples are institutional and coalition-focused capacities to strengthen the kind of collaborative and consensus-building skills required to align policies and strategies or to design shared agendas, thereby positioning work for scaling up solutions.

On its own, CGIAR's comparative advantage for HLO #8 is medium. With CGIAR involved in developing core training content and training of trainer (ToT) programs, potential national partners can focus on identifying target participants, delivering direct training, and providing targeted follow-up and coaching. It will be important to monitor the partner landscape and to be ready to pivot away from activities covered by other partners or to modify plans to collaborate with partners on joint outputs.

HLO #9, on transformative leadership for diet and nutrition impacts, requires expertise in translating evidence and concepts into recommended actions, experience in building and facilitating applied learning networks (human capital), and a strong reputation as a thought leader on food systems, diets, and nutrition and other key topics (social capital). Potential partners include well-established nutrition leadership programs, short-term courses provided by international universities and research institutes, and on-demand training provided by groups such as the SUN Movement. CGIAR's comparative advantage for HLO #9 is medium and will be delivered with and through its partners. This Program will also target CGIAR staff and Program stakeholders for tailor-made leadership development training to strengthen systems thinking on diets and nutrition across the entire CGIAR research Portfolio. Through CGIAR staff interaction at country and regional levels, this focus will build a critical mass of transformative leaders committed to bringing about meaningful change at country and regional levels.

HLO #10, on evidence-based policy and financing options related to SHD and nutrition, requires country-specific expertise (human capital) as well as long-term relationships with development banks, funders, policymakers, and other in-country partners, including from the private sector; a local presence; and a strong capacity to generate timely, relevant research that can contribute to outcomes (social capital). Potential partners include governments, think tanks, private-sector organizations active in target countries, and international and regional organizations. CGIAR's comparative advantage for HLO #10 is strong because its global presence creates opportunities to draw insights from studies across diverse countries that can be consolidated into global insights on policy and financing options.

HLO #11, on engaging with relevant policy communities, requires skills in translating concepts into recommendations for action; current knowledge of food systems, diets, and the nutrition policy landscape and actors for a given country/regional context; and familiarity with other agendas such as poverty reduction, climate change, and gender equality (human capital). This HLO depends on trust, reputation, and collaborations with a wide variety of policy actors (social capital). CGIAR's strength also derives from a strong presence and relationships with government and other national institutions with policy facing roles. Potential partners

include international organizations and international and national universities and research organizations. CGIAR is well connected to actors and coalitions related to FST, and its mandate to support countries to align their food systems, diets and nutrition policies towards SHD or to deliver nutrition impacts is informed by the CGIAR IA on *Nutrition, Health and Food Security*. Given that CGIAR has had the bulk of its focus on the supply side of food and on particular staples, CGIAR's comparative advantage for HLO #11 is medium. However, its long-term collaborations with national governments in target countries, its reputation as a recognized and trusted thought leader on relevant topics, and a shared desire (incentives) with the countries themselves to document their own policy processes and share lessons learned with other countries are all important SCA for this HLO.

## 5. Program-level Theory of Change

### Outputs delivered through key impact pathways

This Program's theory of change (TOC) describes three pathways to diet and nutrition impacts — innovation, capacity, and policy (**Figure 5.1 and Appendix Table A3.1**).

**Innovation pathway:** By 2030, the Program will offer a suite of tested solutions to tackle specific constraints that pose barriers to delivering and consuming SHDs. Some HLOs in this pathway relate to specific nutrient-rich foods, such as F&V, aquatic and animal-source foods (ASF), legumes, and biofortified and health-enhancing staples.

**Capacity pathway:** Support activities imbedded within AoWs and consolidated in AoW 6 will generate capacity-sharing plans that enable the scaling of solutions and the strengthening of transformative leadership for FST at the country, regional, and global scales. These activities seek to enhance the agency of partners in target countries to generate, analyze, and use science to deliver FST that favors SHD and contributes to improved nutrition and health. Likewise, HLOs in this pathway will address knowledge and awareness gaps in CGIAR and enable system-wide synergies across the Portfolio to contribute to SHD and improved nutrition.

**Policy pathway:** By 2030, the Program's research, complemented with country engagement, will generate timely and relevant policy, program, and process options that address multiple constraints to FST and deliver better diets and nutrition in the target countries, which governments and other implementers can use.

### Intermediate and 2030 outcomes

The TOC is based on mutually reinforcing innovation, capacity, and policy impact pathways that recognize changes in diets and food systems are dynamic and non-linear. Moving from outputs to outcomes is dependent on a combination of sometimes overlapping activities and contributions from external partners, such as data, skills and knowledge, agency, and human and financial resources (**Appendix Table A3.1**).

**Innovation pathway:** The tested solutions are expected to be used by three groups of actors, leading to the following outcomes:

- **Government actors** incorporate policies, investments, and programming solutions to improve the availability, accessibility, affordability, and desirability of SHD. Field personnel will deliver and test solutions in their area of expertise.

- **Market system actors** incorporate practices that increase the efficiency and quality of available SHD while enhancing employment, incomes, and empowerment for women and youth.
- **Policy communities**, including policymakers, researchers, civil society, and others, articulate complementary multisectoral approaches in synergy with SHD that support improved nutrition and health status.

This pathway relies on several assumptions: (i) the three types of actors can identify, test, and evaluate key policies, business practices, and multisectoral approaches relevant to their specific context; (ii) incentives for the adoption of effective policies, business practices, and multisectoral approaches can be identified and leveraged to drive uptake; and (iii) trade-offs and conflicts among actors can be navigated to generate broad-based coalitions for positive FST.

**Capacity pathway:** The capacity-sharing activities and leadership development are expected to influence three additional groups of actors, leading to the following outcomes:

- **National food system actors** build understanding of and collaborate on coordination and governance elements of food systems that pose risks to SHD and nutrition impacts.
- **Academic and research organizations**, including CGIAR, learn, adapt, and synergize different approaches in support of common food system goals.
- **South-South and North-South networks of food system thinkers and leaders** from across sectors facilitate knowledge exchange and technical expertise on SHD for FST.

The assumptions along this pathway include the following: (i) capacity sharing supports the emergence of a common language and understanding of food systems, FST, SHD, and nutrition across diverse actors; (ii) this understanding facilitates meaningful dialogue to identify synergies, manage trade-offs, and promote shared learning; and (iii) this dialogue contributes to national and global coalitions in support of positive FST.

**Policy pathway:** The policy and financing options and policy engagement and support are expected to lead to the following outcomes:

- **National and subnational policy actors** use tools that assess the FST process to inform decision-making.
- **International and regional organizations** agree to build a shared food systems agenda that maximizes shared benefits and minimizes risks to diets, nutrition, and environments.

These intermediate outcomes are expected to lead to three more changes before 2030:

- **Food systems actors** learn about, adapt, and synergize approaches that support effective public and market system solutions for SHD.
- **National and subnational policy actors** align their nutrition and food system policies, strategies, and/or implementation plans toward achieving diet quality and nutrition impacts.
- **International and regional organizations** actively position diets and nutrition in discussions about alignment across climate, agriculture, and biodiversity agendas, and many finance multisectoral implementation efforts.

These outcomes depend on three assumptions: (i) the actors can identify synergies, manage trade-offs, and develop articulated approaches; (ii) political economy barriers and power dynamics can be positively influenced to support a change agenda; and (iii) national processes can inspire inclusion of diets and nutrition in global discussions.

By 2030, the following changes are expected in four groups of actors:

- **Consumers** increase demand for and consumption of SHD based on behavior change communication (BCC), improved access, and/or greater affordability in at least 5 countries.
- **Market system actors** provide safe, affordable, desirable, and sustainable healthy foods while supporting high-quality employment for women in at least 5 countries.
- **Coalitions of food system actors** in 10 countries will lead the effective implementation of solutions and policy frameworks that deliver accessible, available, affordable, and desirable SHD while balancing environmental and social needs.
- **Global multilateral networks** will incorporate diets and nutrition in a balanced way with climate, biodiversity, agriculture, and education in a global convergence agenda.

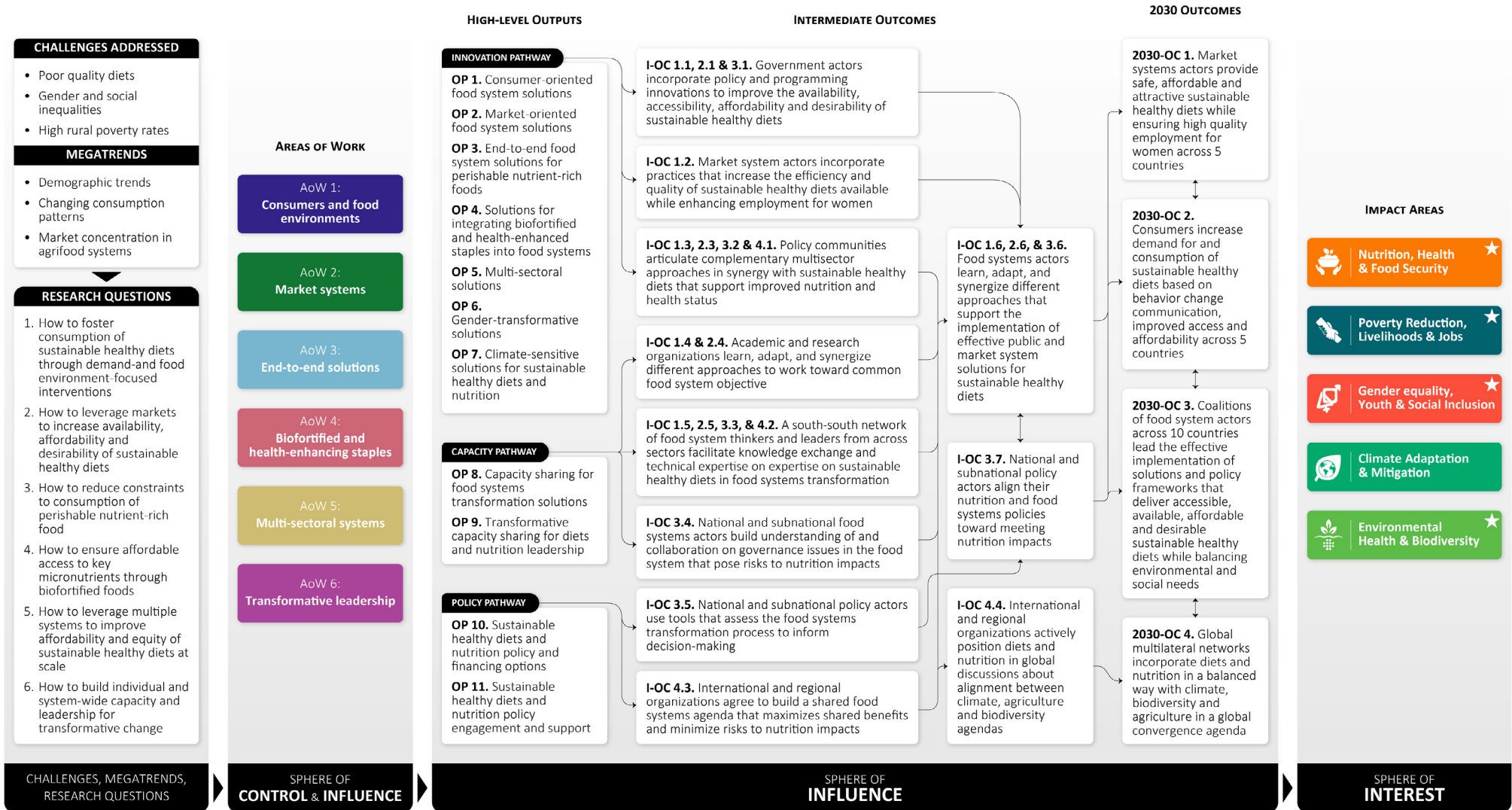
Assumptions include the following: (i) coalitions of actors with sufficient knowledge, shared language, skills, and agency can effectively reformulate public policies to incentivize SHD; (ii) these policies contribute to improved decision-making around diets and consumption and provide incentives for the provision of affordable, attractive, and safe SHD in markets; and (iii) national processes inspire the inclusion of diets and nutrition in global discussions.

### Impacts

The TOC assumes that the Program will contribute first and foremost to all the CGIAR *nutrition, health, and food security* impact indicators and some of the *gender equality and youth and social inclusion* impact indicators in the key countries. The Program will make a less significant but still meaningful contribution to the IAs on *poverty reduction, livelihoods, and jobs*, and *environmental health and biodiversity*. It will generate research on climate change and adaptation but is not expected to meaningfully affect indicators in that IA by 2030.

The Program will engage with partners in the target countries to review impact indicators of most relevance to achieving SHD and to select impact indicators closely aligned with national priorities. It will also engage with major global efforts on nutrition in 2024 and early 2025, where critical indicators will likely continue to be defined, to set targets.

Figure 5.1. Program-Level Theory of Change



## 6. Areas of Work

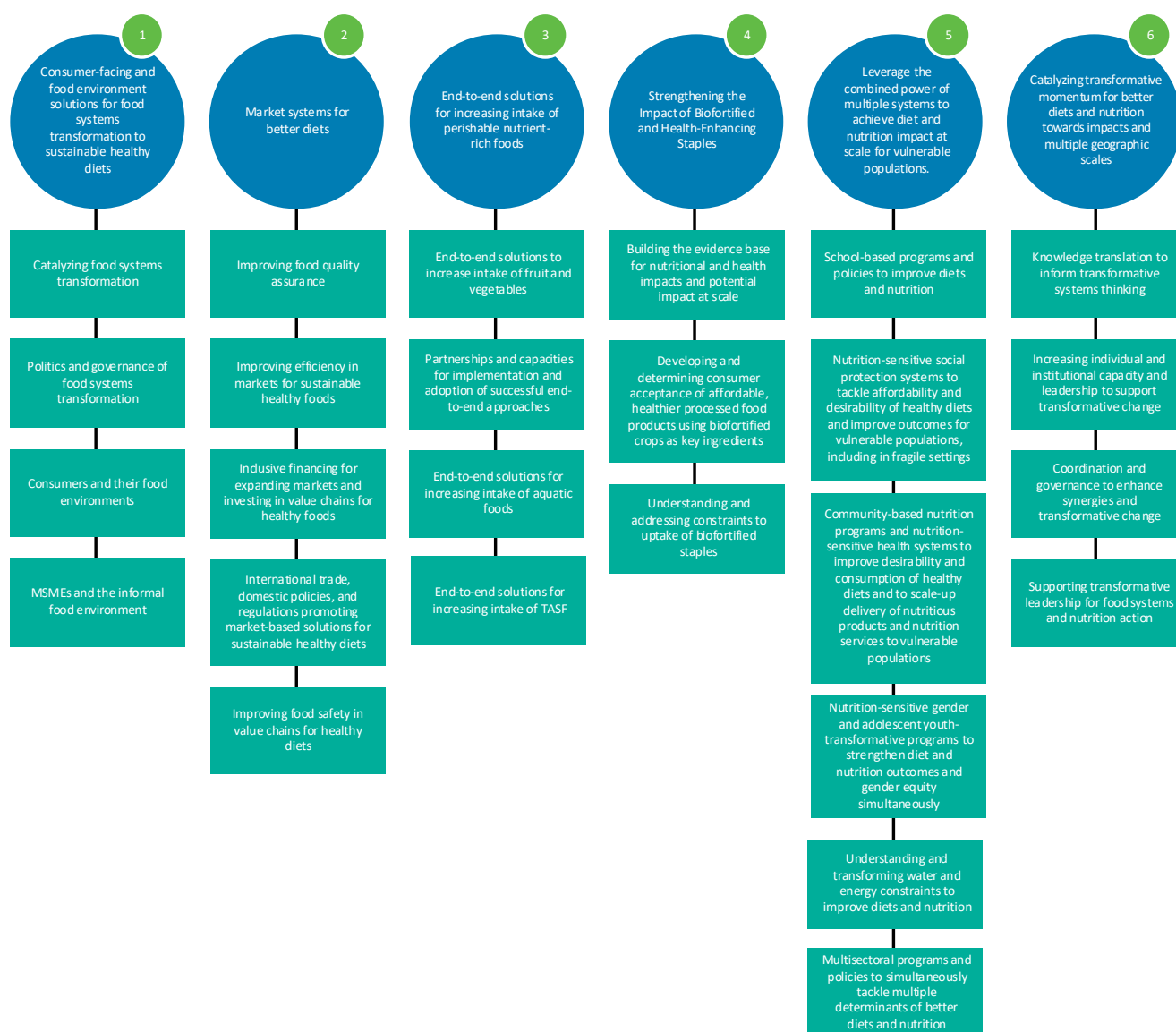
### Overview and framing of Better Diets and Nutrition

The Better Diets and Nutrition Program is anchored in a sustainable [food systems framework](#) (Figure 2.1).<sup>3</sup> Linkages with other Programs, partners, and stakeholders ensure that the Program is grounded in an understanding of what it will take to deploy systems thinking and actions to deliver better diets and nutrition impact equitably, along with other outcomes. It focuses on demand for and affordability and accessibility of SHDs, without losing sight of the critical importance of food supply challenges or the diverse impact pathways needed to achieve [global nutrition goals](#).<sup>1</sup> The Program responds to diverse [megatrends shaping diets and nutrition](#); draws

on the strategic priorities, capabilities, and skills of CGIAR and a global network of partners; accelerates and expands the scientific and impact partnerships for innovative research from CGIAR’s 2022–24 Portfolio and bilaterally funded work.<sup>2</sup>

Using diverse research methods, the six-pronged approach aims to center equitable partnerships and support strong alliances for impact (Figure 6.1). The Program features some “linking topics” between AoWs; while the location of these topics within AoWs is key to deliver the focused insights for that AoW, we anticipate connected insights to emerge across AoWs on methods, tools, and approaches on these topics, such as food environments and some policy aspects. We will use AoW 6 to anchor processes to strengthen the cohesion among, and capacity of, these linkages.

Figure 6.1. Research Focus of the Six Areas of Work in Better Diets and Nutrition



## 6.1. AoW 1: Consumer-facing and food environment solutions for food systems transformation toward sustainable healthy diets

### 6.1.1. Overall ambition

AoW 1 aims to shift consumption toward SHD by bringing consumers and food environments to the forefront of FST-NAPs in target countries (**Figure 6.2**).<sup>7</sup> This AoW tests transformative, scalable consumer, food environment, and governance solutions that shift consumption toward SHD while generating positive impacts on income, food safety, environmental sustainability, gender equality, and climate change. AoW 1 is subdivided into four Sub-AoWs.

#### 2030 outcomes include:

- (Sub) National system actors scale solutions for consumers; for micro, small, and medium enterprises (MSMEs), and for informal actors to shift consumption toward SHD. These actors use inclusive governance frameworks to improve diets while addressing challenges such as gender inequality and climate change. They apply robust food system approaches, including tools, methods, and metrics for SHD, in research and practice.
- Coalitions in and across this Program's target countries expand the FST-NAP beyond agricultural production to credibly address the consumption of SHD.

#### Before 2030, the following intermediate outcomes are expected:

Government actors integrate evidence into policies and programs to promote SHD. They support MSMEs and informal actors by addressing barriers to affordable, accessible healthy foods while increasing income opportunities, particularly for women. They share lessons on improving diets and transforming food systems at global and national levels.

### 6.1.2. Research questions, activities, and approaches

#### Sub-AoW 1.1. Consumers and their food environments

This work focuses on consumers and retail food environments among marginalized populations.<sup>8-9</sup> Key research questions include:

- What is the current food consumption, dietary patterns, and nutrition among marginalized populations? How are these shaped by consumer behavior, over time? What changes are needed for diets to become healthy and sustainable?
- What are characteristics of food environments that marginalized populations interact with? How do food environments, consumer behavior, and diets shape one another, and how does this change over time?
- What transformative, scalable consumer-facing and food environment solutions (e.g., food-based dietary guidelines, nutrition labeling, fiscal policies, marketing restrictions, digital food environments) can equitably shift consumption toward SHD?<sup>10</sup>
- What is the dietary environmental footprint and how can this be improved while increasing diet quality?
- How can climate adaptation and mitigation strategies avoid harming diet quality?

HLOs include a suite of tested consumer-focused solutions that promote SHD.

#### Sub-AoW 1.2. MSMEs and the informal food environment

This work focuses on food environment solutions that can overcome the factors constraining food sector MSMEs and informal actors from selling more healthy foods and increasing decent income opportunities, especially for women. Key research questions include:

- What opportunities and incentives exist for MSMEs and informal actors to deliver healthy foods to consumers, and what factors constrain the sustainable growth of these?
- What are potential transformative solutions to overcome firm- and system-level constraints inhibiting the affordability and accessibility of healthy foods for marginalized populations?
- What transformative solutions can help MSMEs and informal actors who sell healthy foods adequately reach consumers and increase decent income opportunities, particularly among women?

HLOs include a suite of vendor-focused solutions that promote the sale of healthy foods while increasing income opportunities.

#### Sub-AoW 1.3. Politics and governance of food systems transformation

This work identifies alternative politics and governance mechanisms of FST for SHD at (sub)national levels.<sup>11</sup> Key research questions include:

- What are the main (sub)national barriers and lock-ins preventing food systems from transitioning toward more sustainable and healthier outcomes (e.g., political economy, socio-technical, and biophysical barriers)?
- How can momentum be created for a new alternative path toward healthier and more sustainable outcomes at national and subnational levels?
- What conditions need to be satisfied for new pathways to be converted into sustainable, healthy options leading to the full transformation of food systems at (sub)national levels?
- What trade-offs occur among nutritional, health, socioeconomic, and environmental food system outcomes, and how can these be navigated at (sub)national levels?

HLOs include political economy analyses that identify and overcome systemic lock-ins and address trade-offs to define policy options.

#### Sub-AoW 1.4. Catalyzing (sub)national food system transformations

This work supports key partners driving the FST-NAP for SHD. Key objectives include:

- Support (sub)national partners in the implementation of their FST-NAP for SHD.
- Support and build (sub)national partner capacities to monitor FST for SHD processes.
- Facilitate capacity sharing to support and drive (sub)national transformation processes toward SHD.

HLOs include key partners capable of building effective coalitions to implement FST supporting SHD.

**Research methods** in AoW 1 include mixed-methods approaches (e.g., gender, geographic-disaggregated quantitative and qualitative surveys) to characterize different target populations (i.e., consumers, MSMEs, and informal actors). **Landscape analysis**, policy mapping, and stakeholder interviews are used to identify potential solutions, and mixed methods (qualitative research and impact evaluations including randomized controlled trials [RCTs]) are used to evaluate the effectiveness of solutions for the different outcomes of interest.<sup>12-13</sup> Comparative analysis of (combinations of) solutions is used to summarize lessons learned and determine the scalability of an innovation. Traditional political economy and governance analyses include policy analysis, literature reviews, and structured interviews with key decision-makers. Quantitative trade-off scenario analysis results from the Policy Innovations Program are used to facilitate multi-stakeholder foresight consultations at (sub)national levels.<sup>14-15</sup> Support activities from Sub-AoW 1.4 include **ToT programs**, facilitation of multisector coalitions and science-policy interfaces, sense-making and reflexive learning, and resources that help countries monitor and adaptively manage the FST-NAP for SHD implementation.

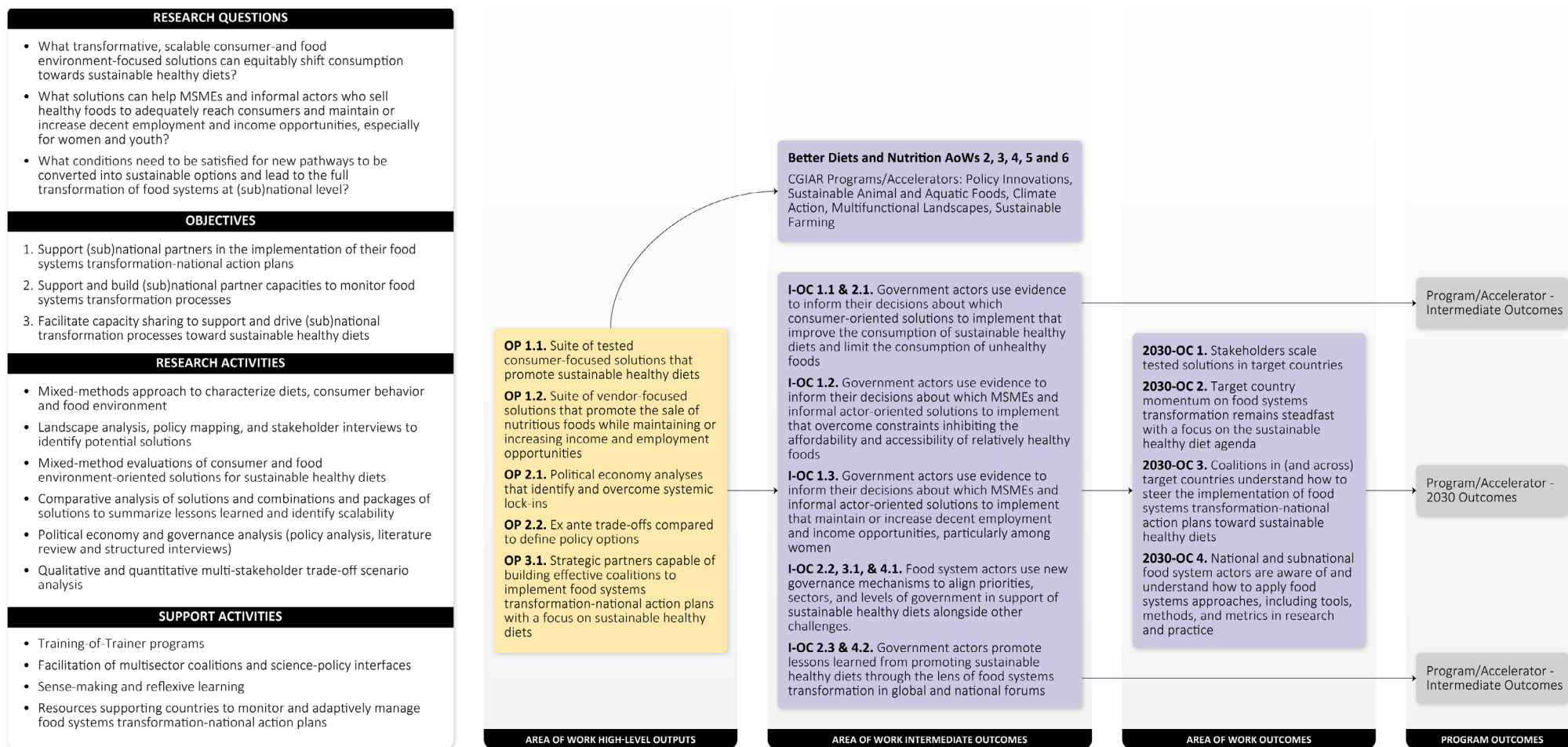
**Building on prior efforts and capabilities.** The research leverages CGIAR's robust expertise in dietary assessment, food environment analysis, and impact evaluations, developed through the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) and SHiFT as well as various large-scale bilateral programs. This work builds on momentum from SHiFT in Bangladesh, Ethiopia, Honduras, and **Viet Nam**. CGIAR's strong and systematic collaborations with FST-NAP policymakers, national research institutes, and food system stakeholders; its strong experience in participatory processes and co-designing innovations tailored to country contexts; along with its active participation in global FST networks and effective partnerships with scaling entities enhance the uptake of this Program's outcomes.

**New and emerging work.** Based on the baseline analysis of diets, consumers, food environments, and the political economy in the target countries, AoW 1 will move to the next phase in FST with increased focus on providing evidence for jointly identified food system solutions for equitable SHD along with other food system outcomes. In response to demands from national partners, AoW 1 will move to the subnational level with intensified capacity sharing for FST for SHD adjusted to the local context. SHD research on food safety, gender, associations with **climate** change and environmental sustainability of diets, and development of nutritious, convenient processed foods will expand.<sup>16</sup> If funding permits, research will expand to additional countries.

**Collaborations with other Programs/Accelerators.** This AoW will conduct foresight modeling with the Policy Innovations Program to identify and navigate potential trade-offs across food system outcomes (SHD, nutrition, health, socioeconomics, the environment). It will test interventions that tackle desirability, availability, and affordability constraints with the Sustainable Animal and Aquatic Foods and the Sustainable Farming programs. It will engage the Climate Action, Multifunctional Landscapes, and Sustainable Farming programs to assess the diet and nutrition implications of climate-adapted production systems.

**Partnerships.** This AoW continues current engagements in target countries with the core national partners tasked with implementing the FST-NAP and it continues working with global institutions to support capacity sharing and engagement in target countries (**Appendix Table A4.1**). In design, implementation, and evaluation of food system solutions for SHD, this AoW will closely collaborate with the private sector that is relevant for the AoW's objectives and target population, mainly MSMEs, informal actors, and their suppliers. The success of the Program's partnerships depends on the AoW's responsiveness to country demands and needs, which in turn depend on flexibility in Program planning and budgeting. In identifying and testing consumer and food environment solutions in target countries, it engages research partners with expertise in the emerging topics of diets and food safety, environmental sustainability and climate change, and gender and equity issues in food systems research.

Figure 6.2. AoW 1: Consumer-facing and food environment solutions for food systems transformation toward sustainable healthy diets – Theory Of Change



## 6.2. AoW 2: Market systems for better diets

### 6.2.1. Overall ambition

AoW 2 aims to leverage market systems to increase the availability, affordability, and desirability of diverse, safe, and nutrient-rich foods while increasing incomes and employment opportunities for market actors, including women and youth (**Figure 6.3**).

2030 outcomes include:

- Market actors adopt solutions to improve both the nutritious quality and the safety of food in five target countries.
- Market actors increase the availability and affordability of healthy foods and offer improved employment opportunities for women and youth in five target countries.
- Governments and relevant international fora, including the UN, the World Trade Organization, the G20, and the G7, reorient trade and domestic support policies to provide incentives for greater supply of SHD and more affordable healthy diets.

Before 2030, the following intermediate outcomes are expected:

- Market actors and consumers begin to use tested food quality and/or safety standards.
- Market actors adopt innovations to increase efficiency and reduce food loss and waste.
- Market actors offer agrifood businesses inclusive access to finance, facilitating investment in value chain improvements that lead to an increased supply of healthy foods and more employment opportunities for women and youth.
- Governments and relevant international fora are aware of the benefits of policy support for SHD and invest to incentivize change, including by discouraging consumption of unhealthy foods.
- Markets adopt effective systems for food safety improvement and assurance.

### 6.2.2. Research questions, activities, and approaches

#### Sub-AoW 2.1. Improving food quality assurance

This work focuses on identifying solutions for food quality assurance across markets for healthy foods while ensuring that MSMEs have incentives and means to comply with and benefit from best-bet quality-assurance mechanisms. Key research questions include:

- What market innovations and policy options, including enhancing consumer agency, will improve food quality in a cost-effective manner?
- What regulatory approaches and policy support are needed to provide incentives for market-wide adoption of and compliance with food quality standards?
- Which contextual factors influence the successful implementation and scalability of identified solutions for quality assurance?

HLOs include tested scalable solutions to improve food quality and options for effective policy support to scale up improved food quality practices.

#### Sub-AoW 2.2. Improving efficiency in markets for sustainable healthy foods

This work focuses on understanding market coordination failures and on identifying and testing the cost-effectiveness and scalability of the market system innovations and policies required to overcome those failures and reduce climate impacts through reduced food loss and waste. Key research questions include:

- What market system innovations (e.g., sustainable cold storage and transportation, improved packaging, safe food processing, and digital traceability of food origin and quality) can improve efficiency in the supply and distribution of healthy foods, improving their availability and affordability?
- How can market system innovations that increase efficiency be designed to maximize income opportunities for women and youth?
- What are the benefits of adopting alternative postharvest innovations for healthy foods?

HLOs include tested solutions (i) for improved efficiency, greater coordination, and reduced food loss in market systems for healthy foods; (ii) to show increased incomes and employment opportunities for women and youth in market systems for healthy foods; and (iii) to mitigate the impacts of climate change in market systems for healthy foods.

#### Sub-AoW 2.3. Inclusive financing for expanding markets and investing in value chains for healthy foods

This work focuses on understanding constraints people face in accessing financing within market systems and on evaluating the effectiveness of innovative mechanisms and business models for inclusive financial services. Key research questions include:

- What finance innovations (e.g., mobile banking, micro-insurance, inclusive value chain finance, and guarantee schemes for de-risking investments in agrifood value chains) can provide MSMEs in market systems for healthy foods with adequate access to capital to invest in food system innovations that will improve the supply, reduce the cost, and thereby improve the availability and affordability of healthy foods?
- What financial product design elements can best promote inclusion of women and youth in market systems for healthy foods?

HLOs include tested innovations to (i) deliver inclusive finance in market systems for healthy foods and (ii) increase incomes and employment opportunities for women and youth in market systems for healthy foods.

#### Sub-AoW 2.4. International trade, domestic policies, and regulations promoting market-based solutions for sustainable healthy diets

This work focuses on the role international trade and repurposed agricultural support policies can play in promoting SHD, and the role of large food companies in promoting consumption of ultra-processed foods (UPF) in LMICs. Key research questions include:

- How can trade and domestic support policies be reoriented for better outcomes for food security, better diets, climate change mitigation, and health?
- What is the influence of market concentration and multinational food companies in the marketing of UPF and the deterioration of diets? How can targeted policies combat these adverse influences?

HLOs include global- and country-level policy scenario analyses identifying options for effective policy support for market systems for SHD and policy options to address market concentration and the influence of food company marketing strategies on the supply and consumption of UPF.

#### Sub-AoW 2.5. Improving food safety in value chains for healthy diets

This work focuses on testing innovations to address private underinvestment in food safety, such as strengthening oversight where regulatory action is feasible, improving traceability from farm to fork, testing solutions with MSMEs, and informing consumers about how to reduce their risk exposure by selecting safer products. Key research questions include:

- What types of food safety assurance interventions and consumer education campaigns most effectively improve food safety in informal value chains?
- What are the public health benefits and cost-effectiveness of such interventions?
- To what extent can interventions that emphasize the co-benefits of reducing food loss and waste motivate the adoption of safer food handling practices?

HLOs include tested solutions for locally supported innovations for improving and assuring food safety in settings characterized by high levels of informality.

**Research methods in AoW 2** include scoping studies in selected countries of value chain bottlenecks hampering efficient delivery of healthy foods; research syntheses of existing evidence of innovations for improving quality and food safety assurance, access to finance, and improved logistics; co-design with private- and public-sector partners of innovations in governance mechanisms for food quality and safety standards, improved logistics, and mobile finance to be tested for effectiveness and scalability through gender- and age-sensitive impact evaluations and cost-effectiveness analysis; model-based scenario and political economy analyses of scaled solutions and policy support, including assessment of options for reorienting trade and domestic support policies; and qualitative and quantitative analysis of value chains and markets for UPF.

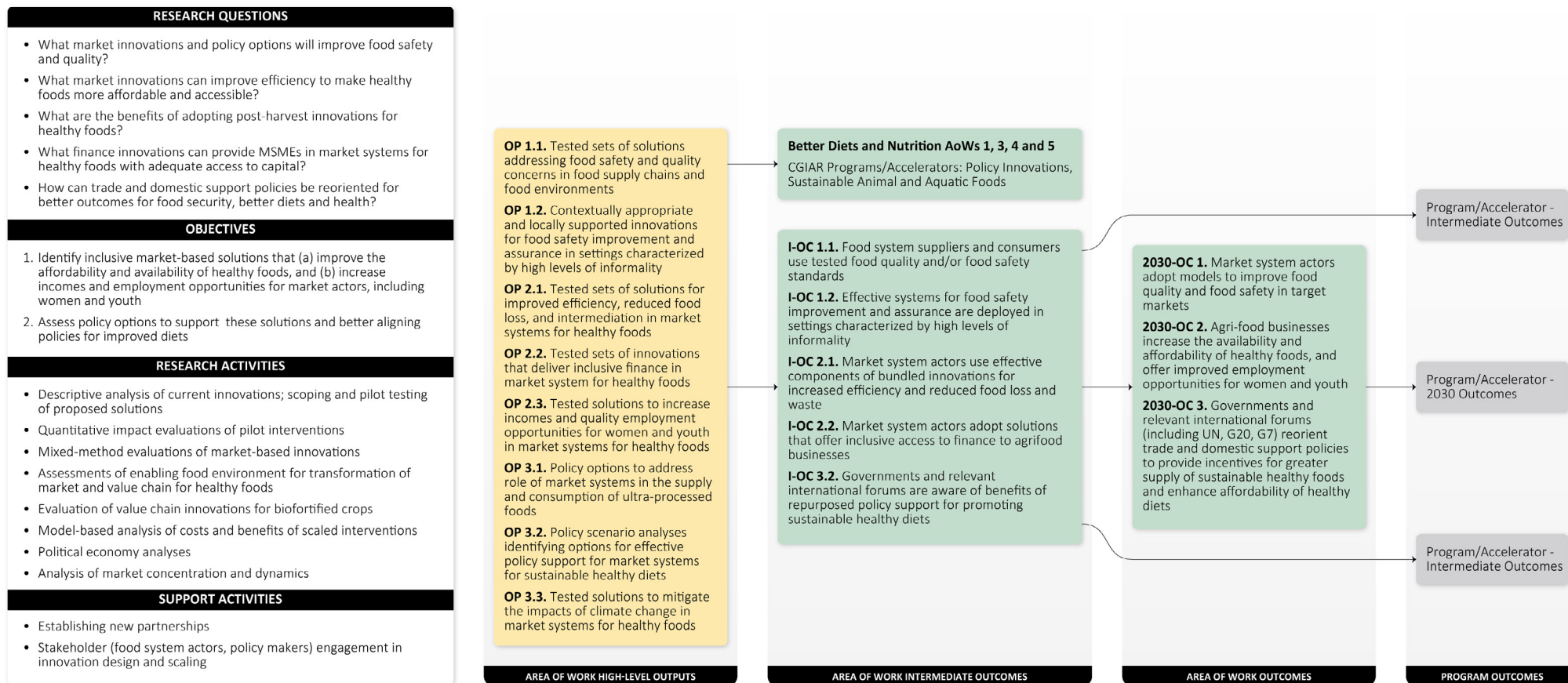
**Building on prior research and capabilities.** The research builds on CGIAR's extensive research capacity in food value chains, markets, and agriculture, food policy analysis, and diets under the CGIAR Research Program on Policies, Institutions, and Markets; the Value Chains for Nutrition flagship of the first phase of A4NH; and, more recently, RFM. This work will continue RFM's research on quality assurance, efficiency-enhancing innovations, inclusive value-chain contracting, and financial innovations focusing on value chains for healthy foods. CGIAR's strong partnerships with national research institutes; food system actors, including policymakers, in target countries for this Program; and potential scaling partners could facilitate market-wide scaling with finance and policy advice.

**New and emerging work.** This work will broaden the ongoing research into new priority countries on reorienting support policies and market incentives and expand research on food safety. It contains new research on the marketing of UPF as well as on the use of renewable energy for food storage and transportation.

**Collaborations with other Programs/Accelerators.** This AoW will collaborate closely with the Policy Innovations Program, which includes broader, food system-wide assessments of market-based solutions. On food safety issues, it will work closely with the related Sub-AoW of the Sustainable Animal and Aquatic Foods and Sustainable Farming programs as well as with AoW 3 and AoW 4 in this Program. It will also work closely with the Scaling for Impact Program to assess the scalability of the innovations and policy support needed to accelerate adoption and impact.

**Partnerships.** AoW 2 will leverage partnerships developed under RFM, including with many MSMEs in LMIC food environments, as well as international research partners, national research institutes, scaling partners (governments, World Bank), and [AgIncentives](#), an international consortium for policy and market incentives monitoring and analysis (**Appendix Table A4.2**).

Figure 6.3. AoW 2: Market systems for better diets – Theory of Change



## 6.3. AoW 3: End-to-end solutions for increasing intake of perishable nutrient-rich foods

### 6.3.1. Overall ambition

Building on successful experiences under FRESH (in Benin, the Philippines, Sri Lanka, Tanzania) and SAPLING (in Ethiopia, Uganda, Tanzania, Viet Nam), AoW 3 will focus on understanding how to successfully co-design, implement, and scale end-to-end approaches to increase people's intake of PNR foods (F&V, aquatic foods and terrestrial animal-source foods (TASF); what impact such approaches will have across key outcomes; how impact is achieved; and how cost-effective such approaches are (**Figure 6.4**).

2030 outcomes include:

- Consumers in target countries increase their intake of targeted PNR foods by 20%.
- Policymakers and other key stakeholders show increased capacity and willingness to implement end-to-end solutions, as evidenced by investments in end-to-end solutions in three target countries.
- At least 10 investment and policy documents increase prioritization of PNR foods to support better diets and nutrition.

Before 2030, the following intermediate outcomes are expected:

- Consumers experience increased desirability, affordability, and accessibility of PNR foods.
- Producers, traders, vendors, and consumers reduce food loss and waste and improve food safety and quality of PNR foods.
- Producers increase production of PNR foods.
- Policymakers and program implementers have increased understanding of end-to-end solutions, their potential benefits, and how they can be implemented.

### 6.3.2. Research questions, activities, and approaches

#### Sub-AoW 3.1. End-to-end solutions to increase intake of fruit and vegetables

This work starts from understanding the critical dietary gaps that could be filled by increasing F&V intake and the context and population-specific constraints to, and opportunities for, increasing intake. To facilitate robust end-to-end approaches, this AoW will conduct linked up in-depth work within and across subcomponents of food systems to address these constraints.

**Desirability.** Co-design and test behavioral and experiential approaches, primarily targeting populations whose preferences are most malleable (e.g., young children and adolescents) and/or influential (e.g., women).

**Affordability.** Leverage social assistance mechanisms (e.g., cash-based transfers) combined with actions to reduce costs of F&V while also increasing incomes from relevant food systems activities.

**Accessibility.** Explore, for example, increasing home production of F&Vs, altering physical food environments, and developing digital solutions.

**Availability.** Assess how preferred traits for vegetables (including underutilized crops) vary across contexts and sociodemographic characteristics and will use pilot studies to understand impacts of Good Agricultural Practices (GAP), actions to support biodiversity of climate-suitable F&V, and postharvest innovations addressing food and income losses, microbial contamination, and pesticide residues. Tested strategies will include, for example, awareness raising related to pesticide use; introduction of alternative pest management strategies, improved harvest and packing methods; and using low-energy cooling solutions.

Key research questions for Sub-AoW 3.1 include:

- What are the short- and long-term impacts of different end-to-end approaches, and combinations of components, on diet, nutrition, health, production, income, and empowerment outcomes?
- What are the key components of end-to-end solutions and the best ways to implement those to achieve impact?
- What are the costs and benefits of the most promising solutions?
- What are the cross-country trends in F&V production and consumption patterns?
- What are current investments in horticulture, and what is needed to support significant shifts in this sector to support SHD?

HLOs include tested end-to-end solutions to increase F&V intake; evidence on which end-to-end solutions, and components within those, are impactful, why, and their relative cost-effectiveness; evidence on cross-country trends in F&V production and consumption and investments in F&V; and F&V-specific policy analysis within agriculture, health, and other relevant sectors.

#### Sub-AoW 3.2 and Sub-AoW 3.3. End-to-end solutions for increasing intake of aquatic foods (3.2) and TASF (3.3)

This work focuses on the accessibility, affordability, and desirability of aquatic foods (3.2) and TASF (3.3) for consumers and the nutritional impact when these foods are incorporated in diverse diets. Sub-AoW 3.2 and Sub-AoW 3.3 share some common research questions and have a few that are unique. Key research questions include:

- What are the barriers to the consumption of TASF and aquatic foods and how can these be addressed through socio-technical and institutional innovations, policy, education, or market interventions? (3.2, 3.3)
- How does climate change affect the availability and nutritional quality of aquatic foods, and what adaptive strategies are needed to ensure continued access? (3.2)
- How much do sustainable production practices impact the environmental footprint and affordability of TASF and contribute to SHD? (3.3)
- What innovations in processing, product development, storage, and distribution of TASF and aquatic foods can enhance their safety, shelf life, and accessibility, particularly for urban and rural populations? (3.2, 3.3)
- What are the costs and benefits of adding aquatic foods to institutional meals and/or social assistance programs? (3.2)

- What role can policy play in supporting the introduction of aquatic foods into national programs, sustainable fisheries, and aquaculture practices that simultaneously address nutrition and environmental goals?

HLOs for both Sub-AoWs include tested end-to-end solutions for increasing intake of (i) aquatic foods (3.2) and TASF (3.3).

#### Sub-AoW 3.4. Partnerships and capacities for the implementation and adoption of successful end-to-end approaches

This work focuses on creating guidance on how to build technical and partnership capacity for successful end-to-end solutions. Key research questions:

- How can we identify and address capacity-sharing needs across key stakeholders involved in the success of end-to-end approaches?
- What are the capacity and policy opportunities for increasing F&V prioritization in research and development, investments, and policy?
- What partnership qualities are critical for implementing end-to-end solutions and associated research-for-development impact?
- What are the best modalities for incorporating diets and nutrition into end-to-end approaches?

HLOs include evidence to inform areas of expansion and deepen understanding of what it will take to scale successful end-to-end solutions and blueprints for technical and partnership capacity building.

**Research methods in AoW 3 include** cross-sectional surveys (Sub-AoW 3.3); variety and GAP trials (Sub-AoW 3.1); pilot tests (Sub-AoW 3.1, Sub-AoW 3.3); impact and process evaluations (all Sub-AoWs); cost-benefit studies (Sub-AoW 3.1, Sub-AoW 3.3); key informant interviews, focus group discussions (FGDs), and observations (all Sub-AoWs); food environment assessments (Sub-AoW 3.1, Sub-AoW 3.3); scenario analysis (Sub-AoW 3.3); and policy dialogues (all Sub-AoWs).

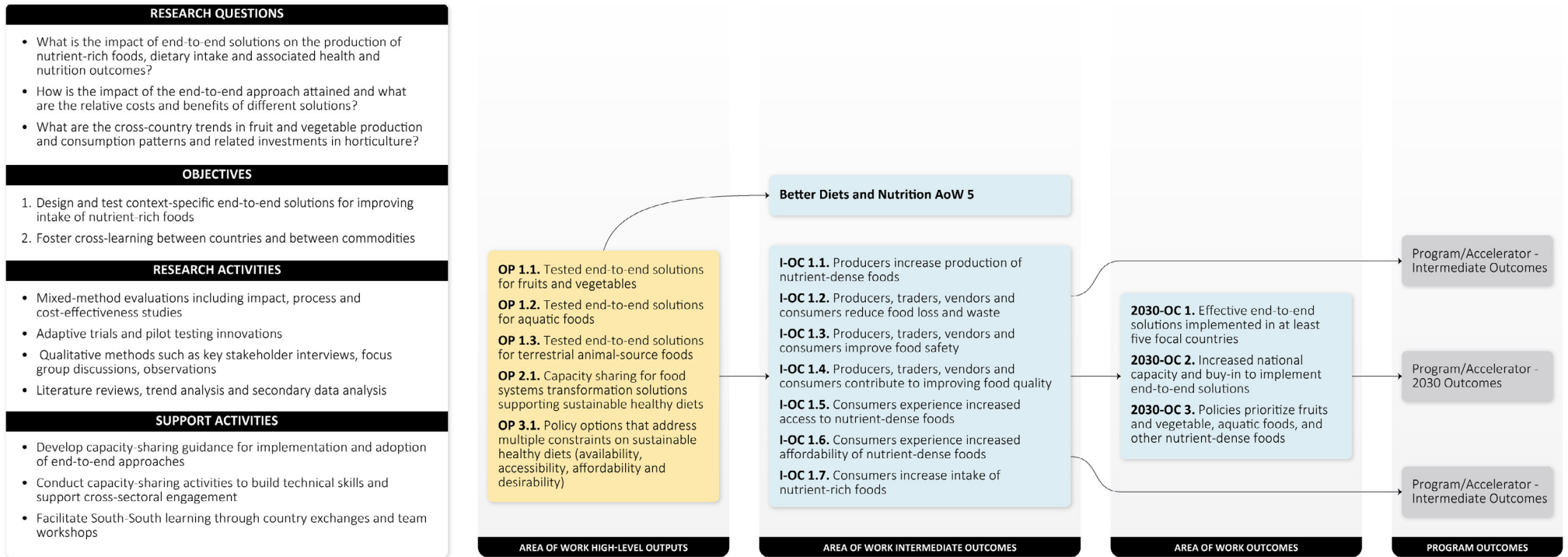
**Building on prior work and capabilities.** The robust partnerships formed under FRESH and SAPLING, buy-in from country stakeholders, appreciation of joint capacities and complementary skills across CGIAR and our partners, along with in-depth understanding of context-specific challenges, opportunities, and potential solutions, are central to the team's ability to collaborate on designing, improving, and evaluating end-to-end approaches. AoW 3 activities build on baseline studies, reviews, qualitative research, secondary data analysis, adaptive and variety trials, multilocation evaluations, and other activities related to improving vegetable cultivars and preserving biodiversity that were conducted under FRESH.

**Emerging and new work.** While building on earlier work, AoW 3 will shift from a focus on understanding the problems toward designing, testing, and iteratively improving F&V end-to-end solutions, while supporting in-country capacities to design, implement, and scale impactful end-to-end solutions. It will increase work related to food safety across different commodities. Additionally, it will add a Sub-AoW focused on how to replicate and scale the approach. Lastly, it will extend the end-to-end approach to animal and aquatic foods. It will also shift from analyzing the policy environment to supporting policy change on specific topics relevant for PNR foods.

**Collaborations with other Programs/Accelerators.** AoW 3 will collaborate with CGIAR's Breeding for Tomorrow and Genebanks, Sustainable Farming, Sustainable Animal and Aquatic Foods, Climate Action, and Scaling for Impact programs, and the Gender Equality and Inclusion Accelerator.

**Partnerships.** FRESH has made significant investments in partnership building, stakeholder engagement, capacity sharing, and understanding the policy environment. To build on this, the team will continue working with established partners (**Appendix Table A4.3**). Where relevant, and as funding allows, the team will add new partners in target countries to support new lines of investigation and replication, adoption, and scaling of successful approaches. For aquatic and animal foods, the team will build on existing Initiative (SAPLING) bilateral projects such as the [Asia-Africa BlueTech Superhighway](#) and strategically build them out to fill any gaps to accelerate the design and implementation of end-to-end approaches.

**Figure 6.4.** AoW 3: End-to-end solutions for increasing intake of perishable nutrient-rich foods – Theory of Change



## 6.4. AoW 4: Strengthening the impact of biofortified and health-enhancing staples

### 6.4.1. Overall ambition

Biofortification is a competitive and cost-effective approach compared with alternative micronutrient interventions and relative to other health interventions. Given that staples are the most affordable source of calories in LMICs, AoW 4 aims to strengthen demand for and supply of biofortified and health-enhancing staples to ensure access to key micronutrients and nutrition security for rural and urban populations (**Figure 6.5**).

2030 outcomes include:

- Intake and reliable supply of selected micronutrients from biofortified food staples increase by 30% in target areas.
- Affordable, healthier processed products and complementary foods from biofortified crops show increased availability in at least five countries.
- Biofortified and health-enhancing staples are increasingly integrated in policies and programs to build resilience and assure nutrition security in the face of climate change and other social and epidemiologic crises.

Before 2030, the following intermediate outcomes are expected:

- Traders and markets include more nutritionally enhanced staples at scale for consumers to access.
- Consumers increase demand for nutritionally enhanced staples, thus accessing key micronutrients at lower cost.
- Researchers have evaluated and prioritized new micronutrients and bioactive compounds for potential incorporation into breeding programs.
- Agro-processors use nutritionally enhanced food staples as ingredients.
- Policymakers ensure systems exist to monitor nutritional content and product quality and incentivize the use of nutritionally enhanced, safe food staples in food systems.

### 6.4.2. Research questions, activities, and approaches

#### Sub-AoW 4.1. Evidence base on biofortified and health-enhanced staples

This work focuses on building the evidence base on the nutrition and health impacts of biofortified and health-enhanced staples and their potential impacts at scale. Key research questions include:

- What is the effectiveness of new biofortified products (e.g., high-iron potato, high-calcium finger millet) in raising dietary intake of key micronutrients and nutritional status of target populations?
- What are the health impacts of staples with resistant starch (e.g., low-glycemic-index rice and other cereals) and promising bioactive compounds from major and underexploited staples?
- What impacts do innovative bundles of biofortified crops and health-enhancing staples with other nutrient-rich food interventions have on nutritional and health status, economic resilience, and livelihoods when introduced through multisectoral programs? (links with AoW 5)

Research methods and other activities include efficacy and effectiveness trials, action research projects at initial scale with impact measurement, dietary intake surveys, biochemical and anthropometric assessments of nutritional and metabolic health status, plus evidence reviews and stakeholder engagement.

HLOs include culturally acceptable solutions for more affordable, accessible, available, and desirable healthy diet options for distinct agroecological settings and strong, evidence-based models for further scaling of biofortified staples.

#### Sub-AoW 4.2. Consumer acceptance of biofortified-based processed products

This work focuses on developing and determining consumer acceptance of affordable, healthier processed food products using biofortified crops as key ingredients. Key research questions include:

- How can biofortified and health-enhancing staples be utilized to develop healthier, affordable processed products, meet the dietary needs of women and young children, and align with consumer preferences?
- What are effective ways to stimulate private-sector investment and public-private partnerships in healthier, safer processed product development using combinations of biofortified crops and other nutrient-rich ingredients?
- What are the most effective approaches to assessing consumer awareness, accessibility, and acceptance of new nutritionally enhanced processed products and building profitable value chains for those products in different cultural and socioeconomic settings?

Research methods include research on product development, nutrient and contaminant laboratory analysis, consumer assessment surveys, behavioral change studies, willingness-to-pay studies, modeling, business case development, and ex ante impact assessments.

HLOs include affordable, healthier, biofortified-based processed products accessible to and desired by consumers; complementary foods for young children using multiple biofortified staples; and guidelines for private-sector engagement in biofortified processed product development.

#### Sub-AoW 4.3. Constraints to uptake of biofortified and health-enhanced staples

This work focuses on understanding and addressing constraints to the uptake of nutritionally enhanced staples. Key research questions include:

- What lessons from analysis of consumer uptake of and demand for biofortified crops (fresh and processed) can help guide the development of accelerated scaling pathways for new biofortified crops?
- What innovative farm-to-fork strategies can best increase awareness, accessibility, and desirability of biofortified and health-enhancing staples and their derived products along value chains?
- What are the most cost-effective approaches for tackling the seasonality and short shelf life of some biofortified crops?

Research methods include secondary data review, impact assessments, value chain assessments, quasi-experimental trials, storage trials, irrigation trials, cost-benefit studies, market demand assessments, and product trials.

HLOs include a comprehensive review of pathways for uptake of new biofortified crops and health-enhancing staples and products derived from them; value chain development and upgrading strategies and policy recommendations; and cost-effective solutions for addressing seasonality in availability.

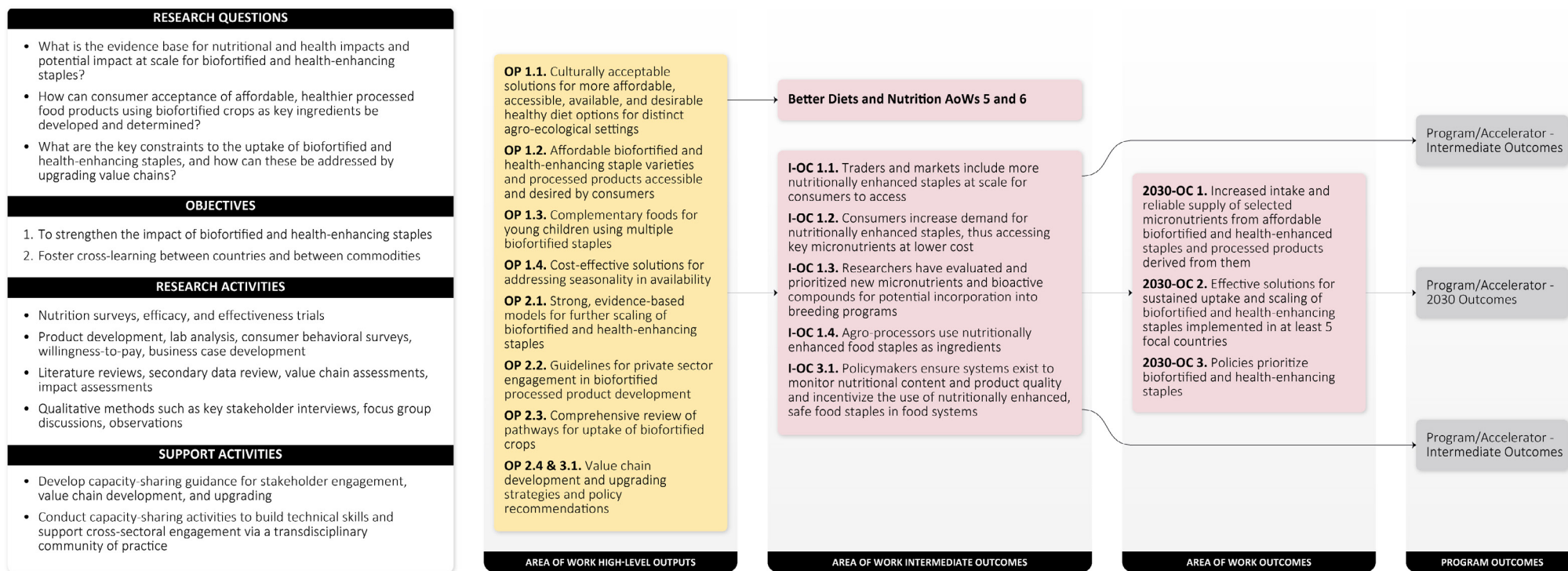
**Building on prior work and capabilities.** The CGIAR crop Centers' comparative advantage lies in their genebanks, laboratory facilities, and expertise in biofortification, conducting efficacy trials, and studies to understand consumer behavior. Extensive partnerships with national agricultural research and extension systems (NARES) allow for adaptive testing, and links with other diverse partners facilitate value chain development. AoW 4 will build on CGIAR's strong and groundbreaking record of work in the area of biofortified staples. Nine CGIAR crop Centers and their key partners breed biofortified staples. Since 2003, HarvestPlus has been a CGIAR flagship program, demonstrating how multisectoral coordination of 12 staple food crop development programs, combined with strong partnerships for implementation, can reach millions of people. A strong network of collaboration with nutritionists in international and national universities produced a strong evidence base for the nutritional impact of consumption of biofortified crops.

**Emerging and new work.** This AoW will examine the pathways to reach more consumers with biofortified commodities and test innovation solutions for both greater reach and greater impact. Stronger collaboration with breeding specialists in the Breeding for Tomorrow and Genebanks Program will ensure quality trait integration into the target product profile (TPP) development process and consumer acceptance trials.

**Collaborations with other Programs/Accelerators.** CGIAR's Breeding for Tomorrow and Genebanks Program will identify consumer market segments while AoW 4 will develop complementary farm-to-fork approaches to ensure uptake of biofortified crops and processed products derived from them. AoW 4 will initially focus on the following biofortified crops: zinc wheat, vitamin A maize, iron potato, high-iron beans, iron-vitamin A sweetpotato, vitamin A cassava, vitamin A banana, zinc maize, high-calcium finger millet, and high-iron pearl millet. Studies will be designed with scaling in mind, drawing on the innovation scaling processes developed by the Scaling for Impact Program. Among the other health-enhancing crops, low-glycemic-index, high-protein rice and opportunity crops (Bambara groundnut, cowpea, finger millet, and taro) will be prioritized. Target countries include Bangladesh, Ethiopia, Guatemala, India, Kenya, Malawi, Nigeria, Pakistan, Philippines, and Uganda, but biofortified crops are in use in more than 40 countries. AoW 4 aims to respond to expressed interest by LMICs seeking to support the introduction of multiple biofortified crops.

**Partnerships.** For efficacy and effectiveness trials, partnerships already exist with leading nutrition programs in universities in Europe, United States, and target countries with nutrition expertise in sub-Saharan Africa, South Asia, and Latin America (**Appendix Table A4.4**). Field studies have been implemented with NGO partners such as CARE, the Global Alliance for Improved Nutrition, Helen Keller International, Semilla Nueva, and World Vision, as well as with numerous government extension services and private-sector seed companies.

**Figure 6.5.** AoW 4: Strengthening the impact of biofortified and health-enhancing staples Theory of Change



## 6.5. AoW 5: Leveraging the combined power of multiple systems to achieve diet and nutrition impact at scale for vulnerable populations

### 6.5.1. Overall ambition

Food system actions are essential, but insufficient, to deliver improvements in SHD or nutrition impacts that are often constrained by underlying structural conditions. AoW 5 aims to leverage actions in multisectoral systems, such as school, health, and NSSP, to tackle malnutrition in all its forms, build synergies with FST actions and contribute to equity goals (**Figure 6.6**).<sup>17-18</sup>

2030 outcomes include:

- Defined policy and program actions increase the affordability, accessibility, and desirability of healthy diets and support gender and social equity outcomes that together reduce all forms of malnutrition in at least five countries.
- At least 20 million people across target countries are reached by policy actions that link food systems with school platforms, health platforms, social safety net programs, and other multisectoral programs.
- One million households access significantly improved diets in the target countries for at least one year.

Before 2030, the following intermediate outcomes are expected:

- Evidence and decision support are available and co-created with policy and program implementers.
- Diets and nutrition programming in multisectoral programs show increased effectiveness.
- Insights on multifaceted solutions to improve diets and nutrition are integrated into multisectoral programs and platforms.
- Multisectoral programs and platforms show increased capability to deploy solutions at scale.
- These intermediate outcomes that benefit populations at risk of poor diets and nutrition outcomes are expected to be deployed in at least five of the Program's target countries.

### 6.5.2. Research questions, activities, and approaches

#### Sub-AoW 5.1. School-based programs and policies

This work focuses on using school platforms to improve the accessibility, desirability, and affordability of nutritious foods for youth. Key research questions include:

- How can school nutrition programs simultaneously enhance diet, nutrition, education, environmental, and equity outcomes through linkages with local businesses and smallholder agriculture?
- How can school nutrition programs incorporate education and BCC to improve nutrition while accounting for climate change and gender dynamics and norms?
- How can school meals sustainably incorporate and scale diverse foods such as neglected crops, biofortified commodities, and animal- and aquatic-source foods?
- How can policies and financing for food-system-linked, school-based nutrition programs, including school meal standards, be sustained?

Research methods include quantitative and qualitative methods: impact evaluations, case studies, policy analyses, behavioral studies, market analyses, and cost-effectiveness studies.

HLOs include innovations to help school nutrition programs enhance diets and smallholder agriculture and policies and financing to sustain school meal programs that incorporate nutrient-rich foods.

#### Sub-AoW 5.2. Nutrition-sensitive social protection systems

This work focuses on using NSSP systems to improve the affordability and desirability of healthy diets and improve outcomes for vulnerable populations, including in fragile settings. Key research questions include:

- How can NSSP systems and food system actions jointly address the affordability and desirability of SHD?
- Which design features improve diet quality and nutritional status in diverse settings, especially during crises?
- How can adaptive NSSP systems promote resilience in diet quality and nutritional status amid climate change, conflict, and other crises?

Research methods include quantitative and qualitative approaches: impact evaluations, large-scale data analyses, policy analysis, consumer acceptance studies, case studies, and formative research.

HLOs include guidelines for selecting appropriate nutrition inputs to strengthen NSSP systems in at least two contexts and evidence on the impacts of improving diets through NSSP systems in at least two fragile and development settings.

#### Sub-AoW 5.3. Community-based nutrition programs and nutrition-sensitive health systems

This work focuses on using community-based nutrition programs and nutrition-sensitive health systems to improve the desirability and consumption of healthy diets and to scale up delivery of nutritious products and nutrition services to vulnerable populations, going beyond the existing evidence on maternal and child nutrition programs. Key research questions include:

- How can community-based programs and health-systems-based nutrition interventions deliver sustained nutrition actions at scale? How do these approaches compare to market-based nutrition education?
- How can successful behavioral interventions to shape sustainable healthy diets and other nutrition behaviors be adapted and replicated, with a focus on sustainability and scalability?
- How can the goals and activities of diverse community-based programs be aligned to support better diets and nutrition?

Research methods include systematic reviews and meta-analysis; impact evaluations, including RCTs and field experiments; cross-sectional surveys and behavioral assessments; sustainability assessments and longitudinal studies; economic evaluations and cost analyses; and policy reviews, policy analyses, and implementation system assessments.

HLOs include guidance for scaling community-based and health-systems-based nutrition interventions and tools and insights on impacts of scaling and sustaining efforts to improve diets through community-based programs and health-systems actions

#### Sub-AoW 5.4. Nutrition-sensitive gender and adolescent youth-transformative programs

This work focuses on using nutrition-sensitive gender and adolescent-youth-transformative programs to strengthen diet and nutrition outcomes and gender equity simultaneously. Key research questions include:

- What programs and innovations help reshape existing gender norms around agriculture, diets, and nutrition?
- How can gender-transformative approaches, such as male engagement, family-focused BCC, and labor-saving innovations, be integrated into nutrition-sensitive programs?
- Which early interventions with young people best address gender dynamics and dietary practices simultaneously?

Research methods include impact evaluations to assess the combined effects of social norm interventions and nutrition education and case studies, impact evaluations, qualitative research, and policy analysis.

HLOs include innovations to strengthen investments in gender-transformative approaches to improve dietary practices and nutrition outcomes.

#### Sub-AoW 5.5. Water and energy constraints

This work focuses on filling evidence gaps on how to overcome the water and energy constraints to improving diets and nutrition in diverse settings, focusing on women. Key research questions include: Which innovations at the intersection of water, energy, and food security would best promote SHD and lower the work burden on women?

Research methods include scoping reviews on gender-transformative innovations, empirical analyses, and formative research; case studies and analyses of new datasets with water, energy, and food insecurity indicators; and impact evaluations and policy engagement to integrate nexus interventions into diet and nutrition programs.

HLOs include tested innovations that address consumer-facing water and energy constraints to improving diets and nutrition.

#### Sub-AoW 5.6. Multisectoral programs and policies

This work focuses on using multisectoral policies and government and nongovernmental programs to simultaneously tackle the multiple determinants of better diets and nutrition. Key research questions include:

- How can multisectoral convergence models in large-scale government-led efforts be made more effective to improve nutrition outcomes?
- What are the best implementation models to bring together efforts across multiple government sectors and simultaneously address the desirability, affordability, accessibility, and availability of SHD?
- What factors contribute to success and sustained impacts?

Research methods include case studies and policy analyses; scoping studies on potential innovations that bring together multisectoral efforts in large-scale programs; and policy engagement and decision support.

#### High-level outputs include multisectoral programs and policy options.

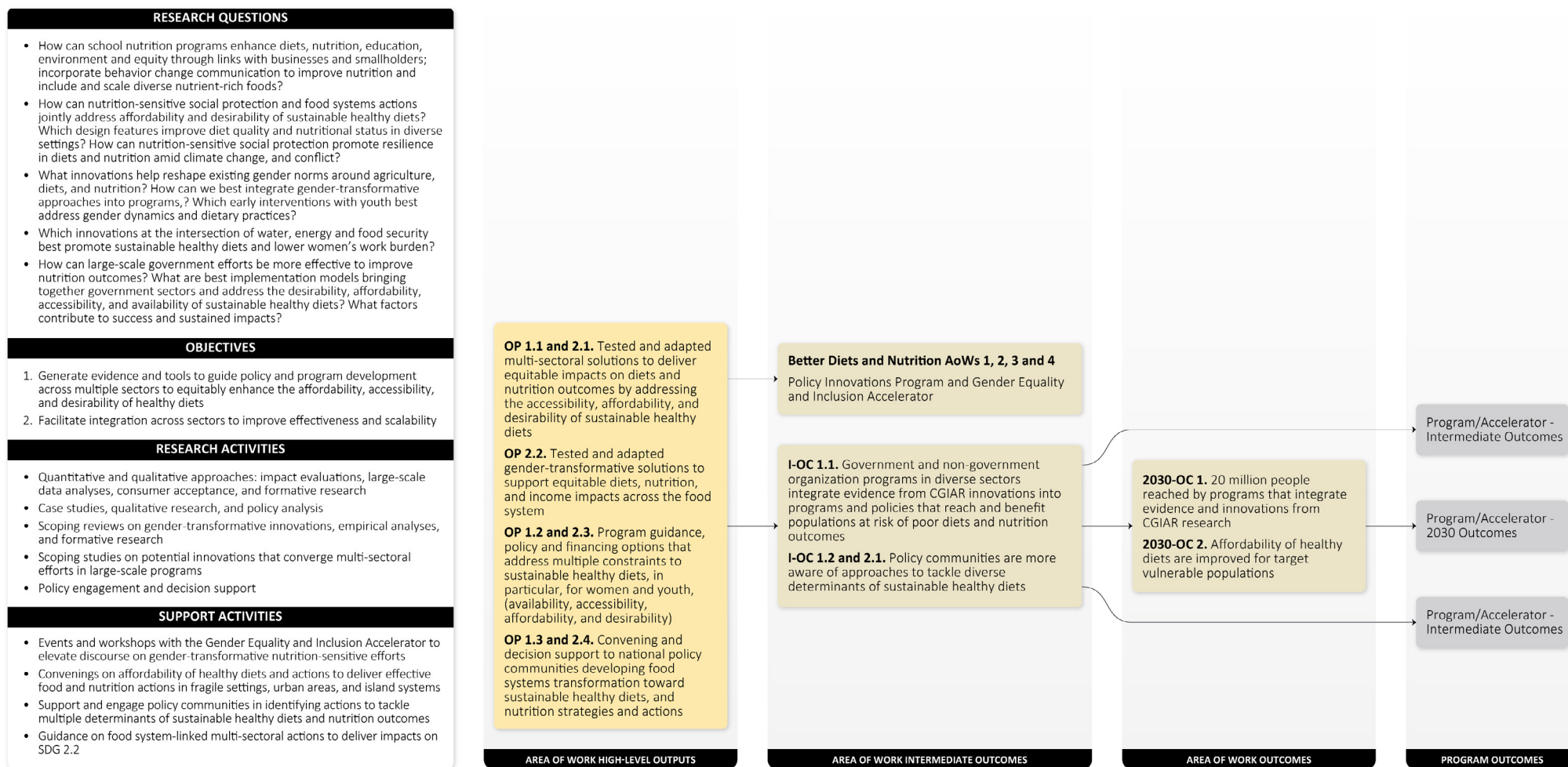
**Collaborations with other Programs/Accelerators.** AoW 5 will link with the Gender Equality and Inclusion Program to co-develop research on gender-transformative nutrition-sensitive efforts. Together with the Food Frontiers and Security Program, it will identify the best ways to improve the affordability of healthy diets and deliver effective food and nutrition actions in fragile settings, urban areas, and island systems. In collaboration with Policy Innovations, it will co-develop and test strategies such as NSSP and examine the role of pro-poor economic growth in improving outcomes. With Scaling for Impact, it will co-design scaling strategies and design research to capture scaling lessons. It will collaborate with policy communities to identify policy options to tackle multiple determinants of SHD and nutrition outcomes.

**Building on prior work and capabilities.** This AoW builds on substantial prior CGIAR work on testing solutions that combine food- and nutrition-focused actions with actions in, for example, agriculture, gender, livelihoods, safety nets, and school-based programs. It leverages extensive capabilities — across CGIAR Centers — in co-designing interventions in these areas, evaluating their impact, and engaging with policymakers and funders.

**Emerging and new work.** AoW 5 will leverage prior work on improving diets and nutrition through diverse sectors and systems with capabilities in evaluating complex interventions to connect the dots in much deeper ways between food systems and other systems and sectors. For example, it will link to bilateral work being done on homegrown school feeding.

**Partnerships.** Partnerships encompass the sectors of education, health, social protection, and water and sanitation (**Appendix Table A4.5**), including government partners at the national and subnational level, implementation agencies that deploy extension agents in health, agriculture, and other programs. For social protection and community-based interventions, implementing partners will include UN agencies, NGOs, and national governments. Health system partnerships include major schools of global and public health in both the Global North and South.

**Figure 6.6.** AoW 5: Leveraging the combined power of multiple systems to achieve diet and nutrition impact at scale for vulnerable populations – Theory of Change



## 6.6. AoW 6: Catalyzing transformative momentum for better diets and nutrition toward impacts and multiple geographic scales

### 6.6.1. Overall ambition

AoW 6 aims to catalyze transformative momentum by strengthening integration of diet- and nutrition-oriented design across CGIAR research and disseminating insights beyond target countries through regional and global networks. No target country will have all AoWs implemented. AoW 6 will consolidate evidence, tools, and insights from the Program and entire CGIAR research Portfolio, including bilateral research, to influence policy, coordination, and governance for better diets and nutrition in countries, regions, and globally. AoW 6 will ensure cross-fertilization of lessons between AoW 1 target countries with a strong focus on FST capacities and others through regional and global engagements, complemented by fostering transformative leadership capabilities to build a critical mass of leaders specifically for FST toward better diets and nutrition (**Figure 6.7**).

2030 outcomes include:

- At least five countries adopt evidence-based solutions emerging across the Program and apply holistic approaches for their food systems for diets and nutrition.
- At least five countries and one regional body adopt strengthened coordination and governance mechanisms for evidence uptake from all AoWs and other CGIAR Programs.
- Enhanced individual and institutional capacities and leadership for FST and nutrition actions across sectors to improve diets and nutrition in 10 countries.

Before 2030, the following intermediate outcomes are expected:

- Enhanced knowledge translation and evidence uptake mechanisms in place to influence FST and broader diets and nutrition agendas in target countries and relevant regional and global platforms.
- CGIAR Programs and partners apply transformative leadership approaches supporting FST to holistically foster better diets and nutrition.

### 6.6.2. Research questions, support activities, and approaches

#### Sub-AoW 6.1. Knowledge translation informing transformative systems thinking

Building on evidence from this Program's AoWs in target countries, AoW 6 will enhance accessibility and use of existing and emerging data, evidence, solutions, metrics, and tools for national, regional, and global stakeholders. Key research questions include:

- What are the most effective ways to support evidence synthesis from the Program's AoWs and other CGIAR Programs/Accelerators and bilateral research for dissemination to different food system actors?
- What strategies build positive knowledge ecosystems to support diets and nutrition impact, from country to global levels?

Research methods include testing and adaptation of knowledge synthesis and dissemination strategies; systematic evaluations to inform knowledge translation effectiveness; and evidence gap maps to inform CGIAR's research priorities and innovations to support FST for better diets and nutrition.

HLOs include knowledge translation strategies adapted for different audiences and platforms and knowledge products to shape, implement, evaluate, and scale CGIAR research and innovations to support SHD and global food and nutrition security.

#### Sub-AoW 6.2. Increasing individual and institutional capacity for transformative change

Complementing the Program's AoWs, in collaboration with AoW 1, and linking to the whole CGIAR research Portfolio, Sub-AoW 6.2 will identify capacity gaps for holistic FST, synthesize evidence on required capacities, and develop tools to foster better understanding of how to address the gaps within CGIAR and the target countries. Key research questions include:

- What are the needed evidence-to-policy translation capacities and best capacity sharing practices to support transformative change for food systems and nutrition?
- What are the minimum capacities required for effective policy actions for FST and nutrition strategies?

Research methods include literature reviews and participatory approaches to identify and evaluate solutions to address capacity gaps through regional and global engagements that include Program target countries to foster lesson sharing across the Program's AoWs. In collaboration with the Program's other AoWs, Sub-AoW 6.2 will synthesize best practice case study lessons for capacity sharing on diets and nutrition for regional and global stakeholders.

HLOs include reports and publications identifying capacity gaps to inform effective capacity-sharing modalities by the Program and other stakeholders; targeted capacity-sharing events, workshops, and online modalities; and training programs to improve the capacity to translate evidence into policy action and promote strategic engagement for change.

#### Sub-AoW 6.3. Coordination and governance to enhance synergies and transformative change

Sub-AoW 6.3 responds to needs for evidence on coordination and governance identified through the Program AoWs, listening sessions, ongoing engagements, and new opportunities as they emerge in target countries and regional and global platforms. All AoWs address coordination and governance within their target country context while AoW 1 has significant efforts on coordination and governance. AoW 6 will complement these efforts by drawing lessons learned into regional and global platforms and CoPs fostering impacts beyond target countries. No target country has all AoWs and Sub-AoW 6.3 will foster cross-country fertilization of ideas to strengthen synergies. Key research questions include:

- What coordination and governance modalities are needed to enhance synergies and deliver impactful actions on diets and nutrition goals within CGIAR, target countries, and regions?
- Using comparative analyses collaboratively across all AoWs, how can policy coherence be improved to align food system actions for diets and nutrition strategies with other major policy directions?

Research methods include literature, strategy, and policy reviews; qualitative studies to identify potential coordination and governance modalities; stakeholder workshops, FGDs, scenario analysis and expert elicitations; and innovative evaluation of diet and nutrition policy processes and frameworks to identify synergies that minimize trade-offs.

HLOs include well-functioning FST CoPs for CGIAR and partners at multiple levels beyond this Program's target countries, and, for CGIAR, with key achievements reported annually; reports on multisectoral food systems and nutrition coordination and governance typologies and mechanisms; knowledge briefs, metrics, and tools on advocacy, coordination, and governance for sharing across multiple platforms; and tailored recommendations on coordination and governance modalities for different contexts.

#### **Sub-AoW 6.4. Supporting leadership development for transformative food system and nutrition action**

Collaboratively across the Program's AoWs, Sub-AoW 6.4 focuses on nurturing a critical mass of transformative leadership capacity to promote positive food system and nutrition outcomes bridging gaps between science, policy, and people. Transformative leadership attributes are needed to leverage interlinkages across disciplinary efforts to foster synergies to accelerate change at national, regional, and global levels. Targeted efforts will generate evidence to inform content for leadership development training to support transformative ways of working. The starting point will be gaps identified by this Program's AoWs and target-country consultations with other CGIAR Programs. Key research questions include: How can we support and promote transformative leadership development for FST to support SHD in different settings?

Research methods include literature reviews, participatory qualitative and quantitative approaches, and barriers and needs analysis to inform leadership development content and approaches.

HLOs include a leadership development curriculum adaptable to different settings; a ToT program on leadership development; regional and global leadership training events; and regional or continental food system and nutrition leadership platforms established as CoPs.

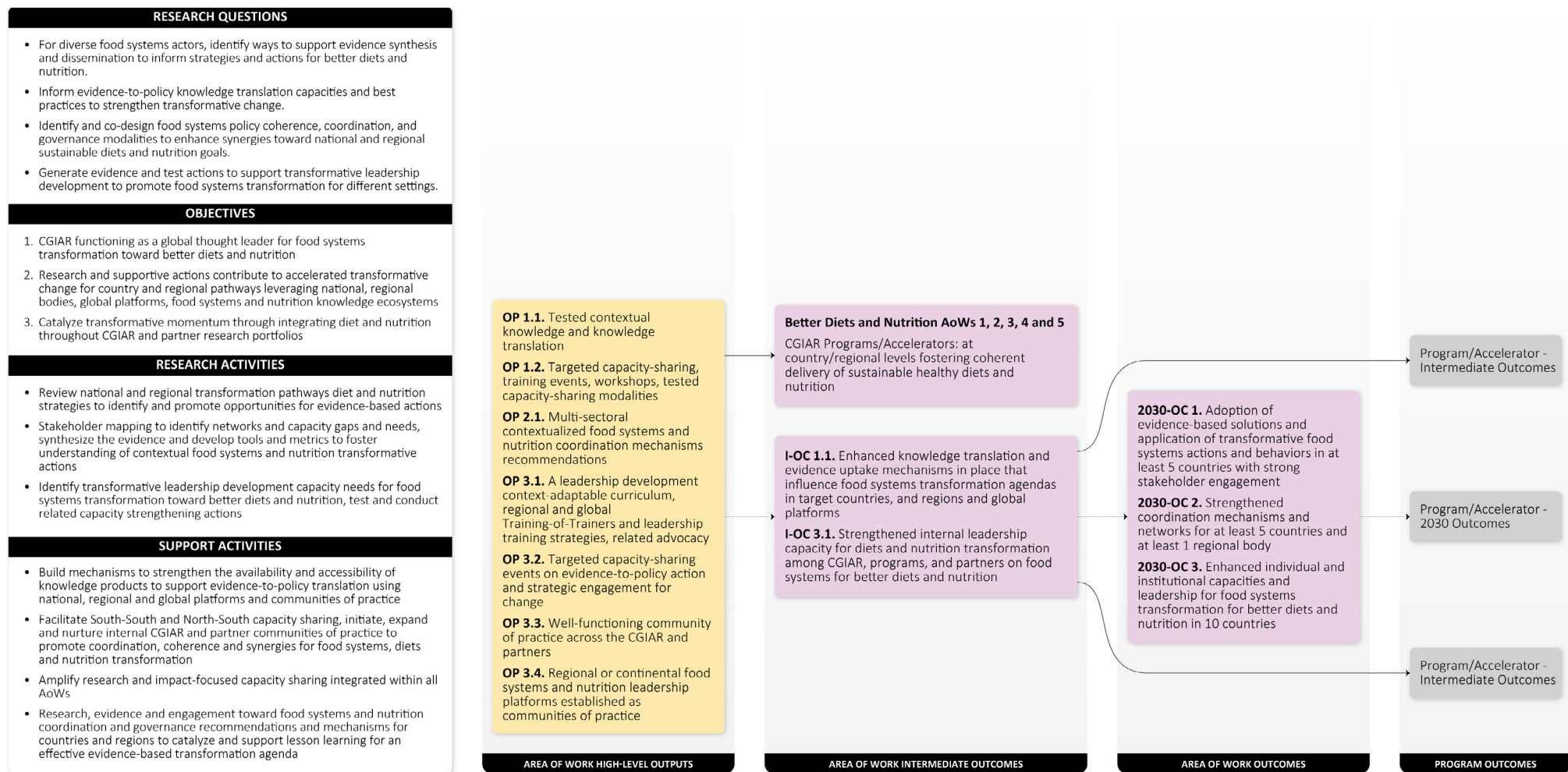
**Building on prior work and capabilities.** The Program embeds the goals of CGIAR's Nutrition Impact Platform and existing CGIAR partnerships. Drawing on this, AoW 6 will apply lessons and experiences generated by this Program's AoWs and the other Programs/Accelerators to strategically disseminate lessons to strengthen transformative change across diverse food system actors, including CGIAR, taking lessons beyond target countries through regional and global engagements.

**Emerging and new work.** This Program extends the Nutrition Impact Platform's efforts to address coordination and governance challenges and leadership development. All AoWs will address coordination and governance under their different contexts. AoW 6 will use the strong learning agenda described above, working collaboratively with all AoWs to generate additional insights on needed coordination and governance modalities and transformative leadership to support FST for better diets and nutrition at multiple levels, including within CGIAR.

**Collaborations with other Programs/Accelerators.** The Program will strategically work with CGIAR's Policy Innovations and Scaling for Impact Programs and its Capacity Sharing Accelerator to strengthen enabling environments for leading transformative change. Specific capacity sharing events will target CGIAR staff, an important stakeholder on strengthening interlinkages across the entire CGIAR research Portfolio to enhance coherence within CGIAR for better diets and nutrition.

**Partnerships.** CGIAR has both social capital and physical assets across Africa, Asia and the Pacific, and Latin America and the Caribbean, with strong existing relationships for engagement with regional and global platforms (**Appendix Table A4.6**). AoW 6 team members are present in regional and global processes within which planned activities will be implemented, (e.g., CAADP, the SUN Movement, and UNFSS). The African Nutrition Leadership Programme (ANLP) is a strong partner in nutrition leadership development but CGIAR has stronger comparative advantage in convening food system and other perspectives of CGIAR. Other partnerships will include planning processes of the post-SDG agenda, the SUN Movement, and the 2025 [Nutrition for Growth Summit](#). There are also existing partnerships with national institutions in target countries.

**Figure 6.7.** AoW 6: Catalyzing transformative momentum for better diets and nutrition toward impacts and multiple geographic scales – Theory of Change



## 7. Country integration

### 7.1. Example of integration in Bangladesh

In many target countries, the FST-NAP design and implementation process, an outcome from the 2021 UNFSS, and ongoing work on national nutrition strategies provide entry points for integration for this Program and CGIAR more broadly. Often, these policy processes for FST and for nutrition are separate; CGIAR engagement can support greater alignment. This section provides an illustrative example of how the Better Diets and Nutrition's work can be integrated in Bangladesh through these processes.

As noted in a 2024 CGIAR IAES evaluation, Bangladesh is experiencing multidimensional changes across its economic, climatic, demographic, agricultural, and consumer behavior landscapes.<sup>4</sup> [Stakeholders in Bangladesh](#) want CGIAR to be more responsive to the country's evolving needs by jointly assessing priorities with the government and potential partners and effectively embedding itself within Bangladesh's food system transformation and nutrition strategy efforts.

This Program can respond to this request by keeping in step with the implementation of the country's FST-NAP and national nutrition strategy updates. CGIAR has been actively engaged with the Food Planning and Monitoring Unit (FPMU), the National Convenor for the UNFSS process, and the Bangladesh National Nutrition Council (BNNC) since 2023 as part of work on the FST-NAP process. Through a country coordinator (in-country full-time employee) based in Dhaka, CGIAR is currently part of the formal steering committee for the FST-NAP. CGIAR is also supporting the national nutrition community with evidence and analytics on nutrition to support strategic directions on nutrition through bilaterally funded programs of research and policy support. Entry points to national policy prioritization processes for food systems transformation and nutrition (which are often separate policy processes) could be addressed by Better Diets and Nutrition research, specifically related to testing and scaling potential food system and nutrition solutions (HLOs #1–7) delivered through collaborative work across AoWs 1–6. It also offers an opportunity for the Program to leverage evidence and insights from other Initiatives and bilateral projects. These include TAFSSA's studies on drivers of dietary choice, local food system assessments, and capacity sharing through Delivering for Nutrition as well as work by CGIAR's Rethinking Food Markets Initiative (for AoW 2) in Bangladesh. Bilaterally funded work also includes insights on solutions from evaluations of large-scale community programs for behavior change, nutrition-sensitive social protection programs, and agriculture-nutrition-gender transformative programs. Other entry points offer the opportunity to collaborate with other CGIAR Programs present in Bangladesh, such as the Policy Innovations and Scaling for Impact Programs and the Gender Equality and Inclusion and Digital Transformation Accelerators ([Table 14.2](#) and [Appendix 5](#)).

As part of CGIAR's engagement around the FST-NAP, stakeholders in Bangladesh have expressed demand for tools that build awareness and skills in food system concepts, approaches, and FST governance and for South-South exchange. As part of bilateral programs engaged in nutrition, stakeholders have expressed interest in having data and analytical support on nutrition priorities. CGIAR researchers, especially those based in South Asia/Bangladesh, and partners in Bangladesh can work across AoWs in this Program, supported by funds from diverse sources. Doing this alongside the Capacity Sharing Accelerator can build awareness in CGIAR of what is relevant from the FST-NAP and nutrition strategies for SHD and connect CGIAR evidence to the implementation process. CGIAR and partners can also co-design and conduct national and regional capacity sharing activities on food systems and nutrition for relevant groups in Bangladesh.

The FST-NAP and broader nutrition strategic engagement also provides opportunities to collaborate with other in-country partners, including other government ministries and departments, [ICDDR,B \(formerly known as the International Centre for Diarrhoeal Disease Research, Bangladesh\)](#), the Global Alliance for Improved Nutrition (GAIN), the Bangladesh Rural Advancement Committee (BRAC), Nutrition International, the World Food Programme (WFP), and the BRAC James P Grant School of Public Health of BRAC University. Across CGIAR, activities and partners from relevant bilateral projects can be identified and leveraged via this Program ([Table 14.2](#) and [Appendix 5](#)).

### 7.2. Overview of selected work in 18 countries

Integration will begin in the Inception Phase starting with Bangladesh and Ethiopia. Eighteen first-phase countries ([Table 7.1](#)) will be prioritized for the most intense integration diagnostics, engagement across CGIAR and partners, resource mobilization, and more. The Program aims to remain agile and adaptable in case opportunities arise to embark on strategic integration efforts.

**Table 7.1.** Overview of selected work in 18 countries

Region	Country	Food system typology	AoW	Program and Accelerator collaboration	Key partners
South Asia	<b>Bangladesh<sup>#,*</sup></b>	Rural and traditional	All six	Policy Innovations, Breeding for Tomorrow and Genebanks, Scaling for Impact, Food Frontiers and Security	National government ministries and departments, interim government, FPMU, BNNC, ICDDR,B, BRAC, BRAC James P Grant School of Public Health, Nutrition International, WFP, GAIN
West Africa	<b>Benin<sup>*</sup></b>	Rural and traditional	1, 3	Breeding for Tomorrow and Genebanks	University of Abomey-Calavi, University Parakou, African Breeding Vegetable Council, Genetic Biotechnology & Seed Science Laboratory, Institut National des Recherches Agricoles du Bénin, Centre de Coopération Internationale en Recherche (CIRAD)
MENA	<b>Egypt<sup>#</sup></b>	Informal and expanding	4, 6	Policy Innovations; Scaling for Impact	Egyptian Food Bank, Egypt Ministry of Agriculture, Egypt Ministry of Finance, Egypt Ministry of Planning, UN agencies
East Africa	<b>Ethiopia<sup>#,*</sup></b>	Rural and traditional	1, 2, 6	Policy Innovations, Food Frontiers and Security	<b>Current:</b> Ethiopia Ministry of Agriculture, Ethiopia Ministry of Health, Ethiopian Public Health Institute, Ethiopian Institute of Agricultural Research, Agricultural Transformation Agency, national universities  <b>Potential:</b> Ethiopia Nutrition Leaders Network
West Africa	<b>Ghana<sup>#,*</sup></b>	Rural and traditional	5		University of Ghana
Latin America	<b>Guatemala</b>	Informal and expanding	1, 2, 3	Breeding for Tomorrow and Genebanks	Guatemala Ministry of Agriculture, Instituto de Ciencia y Tecnología Agrícolas, farmer organizations (Popayan, ASCUCH, ADEGO, ASEDECHI, ADIPAZ, ASORECH), WFP-Guatemala
Latin America	<b>Honduras</b>	Informal and expanding	1, 2	Policy Innovations	Honduras Ministry of Agriculture, Secretaria de Agricultura y Ganaderia, Digital Integration of Agricultural Supply Chains Alliance, SwissContact, GIZ-Honduras, Société de coopération pour le développement international, Solidaridad, Hanns R. Neumann Stiftung-Honduras, National Autonomous University of Honduras, Universidad Nacional Autónoma de Honduras, Maturave Honduras, Asociación regional de servicios agropecuarios del oriente, Central de Cajas Rurales and the Association of Producers of Basic Grains Brisas de Talgua, El Programa Nacional de Desarrollo Agroalimentario, Dirección de Ciencia y Tecnología Agropecuaria, Honduran Institute of Agricultural Marketing (national strategic grain reserves), Technoserve, WFP

Region	Country	Food system typology	AoW	Program and Accelerator collaboration	Key partners
South Asia	<b>India<sup>#,*</sup></b>	Informal and expanding	1, 2, 4, 5, 6	Policy Innovations, Scaling for Impact, Gender Equality and Inclusion, Breeding for Tomorrow and Genebanks	NITI Aayog (government policy think tank); government ministries and state government departments cutting across agriculture, health, livelihoods, and education; national research bodies and institutions: Indian Council of Agricultural Research, National Institute of Nutrition, Public Health Foundation of India, All India Institute of Medical Sciences, Institute of Economic Growth, IAVI-India
East Africa	<b>Kenya<sup>#,*</sup></b>	Rural and traditional	1, 2	Policy Innovations, Scaling for Impact	Kenya State Department of Fisheries, Aquaculture and Blue Economy, Kenya Ministry of Health (Human Nutrition and Dietetics Unit), Kenya Ministry of Agriculture and Livestock Development, Kenya Medical Research Institute, Kenya Marine Fisheries Research Institute, public universities, Africa Population Health Research Centre
Southern Africa	<b>Malawi<sup>#,*</sup></b>	Rural and traditional	4	Breeding for Tomorrow and Genebanks	Malawi Department of Agriculture Research Services; Malawi Department of Family Nutrition, HIV and Aids; Lilongwe University of Agriculture and Natural Resources; University of Malawi College of Medicine; UN agencies
South Asia	<b>Nepal<sup>#,*</sup></b>	Rural and traditional		Scaling for Impact, Policy Innovations	Institute for Integrated Development Studies, UN agencies, Helen Keller International
West Africa	<b>Nigeria<sup>#,*</sup></b>	Rural and traditional	1, 2, 4, 6	Breeding for Tomorrow and Genebanks, Policy Innovations	<b>Current:</b> East-West Seeds, DARJHAS, ColdHubs startup, University of Jos, Bunkasa Agritech Ltd, Nigerian Stored Products Research Institute, Nigerian Ministry of Agriculture, Crop2Cash  <b>Potential:</b> Ibadan University, Nigeria Nutrition Leaders Network
Southeast Asia	<b>Philippines<sup>#</sup></b>	Informal and expanding	1, 3, 5	Breeding for Tomorrow and Genebanks, Climate Action, Food Frontiers and Security	<b>Current:</b> Department of Science and Technology in the Food and Nutrition Research Institute (FRESH country coordinator), University of Mindanao, University of Los Banos, Bureau of Plant Industries, International Institution for Rural Reconstruction, WFP, Asia & Pacific Seed Alliance Consortium, Institute of Plant Breeding at the University of Los Banos  <b>Potential:</b> Department of Science and Technology, Philippines Council for Agriculture, Aquatic and Natural Resources Research and Development Department, Philippines Department of Social Welfare and Development
West Africa	<b>Senegal<sup>*</sup></b>	Rural and traditional	1, 4, 5, 6	Policy Innovations, Scaling for Impact	

Region	Country	Food system typology	AoW	Program and Accelerator collaboration	Key partners
South Asia	<b>Sri Lanka<sup>#, *</sup></b>	Informal and expanding	3, 5	Breeding for Tomorrow and Genebanks, Climate Action	<b>Current:</b> Wayamba University of Sri Lanka, University of Peradeniya, WFP, Horticultural Crops Research and Development Institute in the Sri Lanka Department of Agriculture, Hector Kobbekaduwa Agrarian Research and Training Institute, Medical Research Institute linked with the Sri Lankan Ministry of Health, Colombo Urban Lab, Landmark Seed, Onesh Seed, Asia & Pacific Seed Alliance Consortium
East Africa	<b>Tanzania<sup>#, *</sup></b>	Rural and traditional	1, 2, 3, 4, 6	Sustainable Animal and Aquatic Foods, Breeding for Tomorrow and Genebanks	Tanzania Agricultural Research Institute, National Irrigation Commission, Tanzania Horticultural Association, Tanzania Plant Health and Pesticides Authority, Tanzania Fisheries Research Institute, Sokoine University of Agriculture, Tanzania Food and Nutrition Council, National Institute of Medical Research, Tanzania Ministry of Health, Tanzania Ministry of Agriculture, Tanzania Ministry of Livestock and Fisheries, GAIN
East Africa	<b>Uganda<sup>#</sup></b>	Rural and traditional	2, 3	Sustainable Animal and Aquatic Foods	Uganda Ministry of Health (Nutrition Division); Uganda Ministry of Gender, Labor and Social Development; Uganda Ministry of Water and Energy; Uganda Ministry of Agriculture, Animal Resources and Fisheries; Uganda district local governments; Dairy Development Authority, National Agricultural Research Organization; Makerere University; Ripple Effect Uganda; Entrepreneurship for Impact in Uganda; Baganda Kingdom cultural leaders
Southeast Asia	<b>Viet Nam<sup>#</sup></b>	Informal and expanding	1, 2, 5, 6	Policy Innovations	<b>Current:</b> Viet Nam Academy of Agricultural Sciences, Institute for Policy and Strategy for Agriculture and Rural Development, National Institute of Nutrition, Rikolto, CIRAD, Institut de Recherche pour le Développement

<sup>#</sup> countries that held CGIAR Listening Sessions

<sup>\*</sup> countries with a CGIAR country convenor

## 8. Boundaries and linkages with other components of the Portfolio

### 8.1. Boundaries with other elements of the Portfolio

In line with recommendations from the 2024 Systems Transformation Science Group Evaluation, the Better Diets and Nutrition Program will provide insights into consumer behavior and help to elevate nutrition and SHD across the entire Program's portfolio. This scope is not similar to any other CGIAR Program, but two clarifications are useful. First, Breeding for Tomorrow and Genebanks has the mandate for breeding and genetic improvements of biofortified and health-enhancing food staples; breeding of F&V will be part of this Program. Second, research focused on consumers and nutrition is anchored in this Program but in cases where work on Policy Innovations may interface with the group/topic, this Program will ensure there are linkages.

### 8.2. Linkages across the Portfolio

#### **Programs**

The main objective for this Program's collaboration with **Breeding for Tomorrow and Genebanks** is to ensure that breeding efforts for climate-resilient, disease-resistant, and abiotic-stress-resistant food staples incorporate breeding for increased micronutrient content and health-enhancing traits and that the nutrient-enhanced varieties meet target consumer preferences. This collaboration will leverage insights from better understanding of dietary gaps in food systems that are best addressed by mainstream and underexploited food staples rather than by other nutrient-rich foods. The collaboration is expected to help breeders optimize TPPs and breed varieties that fill context-specific gaps in, or constraints to, SHD in different agroecological settings.

The objectives of this Program's collaboration with **Policy Innovations** are to integrate innovations for nutrition into national strategies and programs and to strengthen sectoral efforts to reach consumers and tackle major drivers of dietary choice. Areas of collaboration with Policy Innovations will include foresight research on diet and nutrition outlooks in the countries where this Program will be active and work on social protection and poverty reduction programs that also focus on improving household welfare and thus contribute to the affordability of healthy diets. Collaboration will bring a strong nutrition lens to Policy Innovations' research on food systems governance and food policy reform efforts. Given the emphasis on poverty alleviation strategies in Policy Innovations, this Program will establish links around work on NSSP systems.

The objective of this Program's collaboration with **Sustainable Animal and Aquatic Foods** is to enhance the safety, desirability, and sustainability of animal and aquatic foods in locations where activities of both Programs are implemented. This collaboration will build on the food safety work in Sustainable Animal and Aquatic Foods and this Program's research on access to SHD through food environment and demand-focused innovations. Joint work will include providing proofs of concept on sustainable production practices and the environmental footprint of SHD and assessing the cost-benefit trade-offs of meeting nutrient adequacy from sustainable animal and aquatic foods. The two Programs will coordinate to inform a balanced narrative on the role of sustainable animal and aquatic foods as part of SHD.

Interventions in crop production — such as reduced pesticide use, mycotoxin control, improved soil and water management, precision nutrition, and agronomic biofortification and diversification generated in the **Sustainable Farming** Program — can significantly affect the availability and desirability of food available to consumers. At the same time, consumer demand, market structures, and food environments beyond the farm influence production practices and food quality in markets. The objectives of this Program's collaboration with Sustainable Farming are to provide evidence on (i) the role of market incentives, structures, and demand in promoting food safety innovations during production; (ii) the impact of agronomic innovations on food quality (including for farming households); (iii) the effect of increased productivity and income on farm households' nutritional outcomes; and (iv) improved postharvest practices to reduce loss and enhance quality.

The objectives of this Program's collaboration with **Scaling for Impact** are to ensure that evidence generated by this Program reaches intended audiences in the target countries and regions. Potential activities could include supporting the inclusion of SHD and nutrition in agrifood system assessments and regional/national reports on SHD and nutrition, both to identify priorities for impact at scale. The collaboration will support efforts including the Delivering for Nutrition conference; the **ANH Academy**; and other CoP, policy engagement, and scaling efforts in Africa and South Asia. This Program (AoW 2, 3, and 4) will connect and collaborate with Scaling for Impact to evaluate value-chain pathways, scaling mechanisms, and policy incentives for SHD in target countries, including for nutrient-rich commodities. This Program's AoW 1 and AoW 5 will collaborate with Scaling for Impact's AoW 5 to assess the impacts of diverse context-specific strategies to equitably address the major drivers of dietary choice.

#### **Accelerators**

The objectives of this Program's collaboration with the **Digital Transformation Accelerator** are to: (i) increase the quantity of available data and build the capacity of national partners to implement these methods and use results generated for decision-making at national and subnational levels; (ii) develop and enhance digital diet and nutrition hubs within countries and regions to promote greater nutrition awareness and decision-making among both consumers and policymakers; (iii) identify and test the use of digital tools among MSMEs to improve efficiencies in markets for healthy foods; (iv) design and test web-based and mobile-based digital tools for consumer nutritional advisories; and (v) collaborate with stakeholders in school feeding programs to co-create innovative and adapted digital learning tools and methods for food system education and to bolster the capacity of educators to use these tools and adapt them to local contexts.

This Program's close collaboration with the **Gender Equality and Inclusion Accelerator** will identify opportunities to address the gender equity factors underlying the diets and nutrition challenge. Potential activities could include joint research on and evaluation of gender-transformative, nutrition-sensitive programs and other consumer- and market-oriented solutions and joint advocacy and policy engagement around gender and nutrition linkages. Work on metrics related to gender dynamics across the food system will be expanded and deepened, building on examples explored by the Initiatives/Platforms.

Various capacity-sharing skills and knowledge in CGIAR-targeted countries will be delivered in close collaboration with the **Capacity Sharing Accelerator**. Tools and methods developed under the Capacity Sharing Innovation Lab (AoW 1) will be adapted and used by this Program and this Program (AoW 6) will provide critical diet and nutrition content to support them. Use-case approaches and knowledge management platforms developed under Capacity Marketplace (AoW 2) could be leveraged by this Program to enhance capacity sharing on diets, nutrition, and FST for nutrition with national partners in target countries.

## 9. Monitoring, evaluation, learning, and impact assessment (MELIA)

### 9.1. Monitoring, evaluation, and learning (MEL)

This Program will take a coherent approach to monitoring, evaluation, learning, and impact assessment (MELIA) across funding sources in the Portfolio, with uniformity in processes, capacities, knowledge and data management, and use of results to evidence progress. A minimum level of reporting into the CGIAR Performance and Results Management Framework will be established for bilaterally funded projects.

A results framework with key performance indicators will be developed to systematically assess progress in achieving results across the six AoWs in relation to the Program's TOC. Emphasis will be placed on mainstreaming MEL best practices across the Program. In the first phase, this work will focus on aligning output reporting across pooled and bilaterally funded activities, assessing outcomes from incoming Initiatives and new activities, and using insights from this to refine the overall MELIA approach.

Data and information needed for MEL will be collected and reported to CGIAR annually, following a MEL plan developed during the Inception Phase. Virtual meetings will be held quarterly with AoW management teams and major bilateral projects to ensure progress stays on track. The Program will rely on the data reported through CGIAR's online reporting system. A dedicated MELIA team lead with designated MEL staff time within each AoW will ensure it is updated regularly and will take responsibility for disseminating common indicator definitions to scientists working in the Program. Regular virtual meetings with research activity leaders will be used to ensure the work is on track, highlight the need for course corrections, and cover progress toward delivery on the MEL plan.

### 9.2. Impact assessment (IA)

This Program plans a two-pronged approach to impact assessment (IA), encompassing both impact evaluations of interventions and broader IA of specific Program areas. Within specific AoWs, the Program will conduct ex ante impact evaluations, RCTs and other methods appropriate to the goals and available resources. Evaluations will seek to understand causal mechanisms underlying promising innovations among food system actors. These impact evaluations will use consistently defined measures of outcomes to link to CGIAR outcome goals and to facilitate meta-analysis and foresight analysis. Prioritized outcome indicators for nutrition include **MDD-W** and the cost of a healthy diet in targeted settings. To ensure consistent measurement, help assess progress, and validate assumptions along the TOC, the evaluations will involve scientists from the Policy

Innovations and Scaling for Impact Programs as well as the Gender Equality and Inclusion Accelerator. A senior Impact Specialist will ensure that selected standardized indicators are collected and help teams to design evaluations, particularly for AoW 5.

This Program will conduct broader IA activities in specific geographies, concentrating on understanding complementarities across the Programs in integrative countries. These studies could include learning studies on component, multisectoral, and end-to-end institutional innovations. Policy influence will be assessed for potential impact and reach using appropriate methods from political science/political economy and consistently defined measures where relevant.<sup>19-20</sup> Broader IA studies will typically use mixed-methods approaches and make use of monitoring data on food system innovations collected by the Program and its partners.

## 10. Capacity sharing

This Program builds on the **Nutrition Impact Platform's** capacity-building function, SHIFT and FRESH capacity-sharing activities, mirroring the target countries while extending lessons learned to other countries, regions, and global platforms. Capacity-sharing activities will be co-created with national partners through needs assessments and consultations.<sup>21</sup> Many activities will be led by national partners, supported by CGIAR, and conducted across the Program. AoW 6 serves as the internal hub for shaping and anchoring capacity sharing approaches to enhance technical, scientific, organizational, and leadership skills at individual and institutional levels. The Program aims to enhance partners' agency in target countries to learn, adapt, and synergize approaches that support the implementation and evaluation of effective public and market-oriented food system solutions for SHD at scale.<sup>3,22-24</sup> Likewise, the Program will address knowledge and awareness gaps of CGIAR scientists to enhance system-wide understanding of credible impact pathways between agricultural research and overcoming constraints to SHD and improved nutrition.

The four broad objectives are:

1. Enhance technical knowledge and skills to identify, develop, and implement solutions.
2. Improve scientific knowledge and skills to support and adapt locally led evidence creation and use.
3. Strengthen collaboration and improve governance and multistakeholder processes for FST.
4. Support transformative leadership development in change management and coalition building for FST for better diets and nutrition.

For the first three objectives, the capacity-sharing topics will include but not be limited to:

- Metrics, methods, and tools to assess diets, diet quality, food environments, and food safety.
- Options to improve diet quality and the role of PNR foods and biofortified and nutrient-enhanced staple foods.
- Breeding technologies and GAP for nutrient-rich and climate-resilient crops.
- Food system approaches and food system analyses.
- Building and maintaining effective multistakeholder collaborations.

- Issues in implementing and/or scaling sets of solutions resulting from AoW 1–5.

The topics under the fourth objective are identified in collaboration with well-established nutrition leadership programs in various regions such as ANLP. Emphasis will be placed on strengthening institutional evidence-translation capacity.

A few examples set the stage for the Program’s capacity-sharing efforts:

- In SHiFT, a ToT program on food systems transformation was co-designed with local partners in Bangladesh, Ethiopia, and Viet Nam based on the SHiFT e-course on food systems governance. Existing ToT programs will be supported and adapted for use in more countries to support (sub)national implementation of national action plans and strategies.
- FRESH is developing a ToT program on value chains, from harvesting to storage of safe F&V, focusing on affordable, accessible, and locally suitable technologies. Set to run annually in Tanzania, it will be scaled to other countries if successful. FRESH also supports capacity sharing related to collecting, analyzing, and interpreting dietary intake data across academic and government research institutes.
- Bilateral programs such as IFPRI’s Transform Nutrition West Africa and Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India (POSHAN) have delivered training courses in systems approaches to tackling malnutrition to high-level policy actors globally and within India. These have provided critical insights into how to build the capacity of system actors to understand and act on a multifaceted challenge such as addressing malnutrition in complex settings.
- FRESH, SHiFT, RFM, and relevant bilateral projects have strengthened CoPs such as the ANH Academy and the Micronutrient Forum through participation in scientific program committees, presentations, conferences, dialogues, and dedicated web-based knowledge platforms.
- Delivering for Nutrition in South Asia is a recent partner co-hosting a regional research and capacity-sharing effort, supported jointly by bilateral programs, 2022–24 nutrition Initiatives, and the Nutrition Impact Platform.
- A ToT learning-by-doing course on biofortified sweetpotato was implemented in five languages (English, French, Portuguese, Kiswahili, Amharic) by national institutions, backstopped by CIP. It trained extension personnel to implement nutrition-sensitive, gender-responsive value chains.
- The Dryland Academy at ICRISAT co-developed a three-week capacity-building program for food entrepreneurs from 11 African countries under India’s South-South Cooperation Knowledge exchange program. Through a mentoring model, entrepreneurs, particularly women and youth, will be equipped with skills to improve livelihoods and nutritional outcomes.

External partners are essential to realizing the ambitious changes envisioned (see TOC tables in **Appendices 3 and 4**). Building on lessons learned and partner demand from the Initiatives/Platform, the Program will engage with formal educational and vocational training programs in target countries and with recognized leaders in professional training.

Rather than starting new platforms or networks on food systems, horticulture, and nutrition-sensitive actions, the Program connects with the many existing national, regional, and global multistakeholder platforms and networks. For expertise and advice, the Program will rely heavily on partners, including the SUN Movement, the School Meals Coalition, ANH Academy, Arusha Sustainable Food Systems Platform (Tanzania), and the National Horticultural Platform (Benin).

## 11. Gender and social inclusion

### Challenges and prioritization

Poverty, poor diets, and malnutrition originate from processes of social exclusion of population groups and individuals based on characteristics such as gender, age, geographic location, ethnicity, education, and wealth.<sup>25</sup> This reality plays out in several ways.

- **Food systems are highly gendered and unequal.** Food systems shape availability, access, and affordability of nutrient-rich foods and SHD and can reinforce existing inequalities.<sup>26-27</sup>
- **Food systems are an important source of employment, especially for women and other marginalized groups,** but many jobs are in the informal sector, where low, uncertain incomes and poor labor conditions are typical.<sup>28-29</sup>
- **Poor-quality diets are associated with gender and socioeconomic inequalities in food systems,** causing all forms of malnutrition as well as 11 million premature adult deaths each year.<sup>30-31</sup>

This Program will examine how FST affects those who produce, buy and consume, and supply and trade healthy food. It will generate evidence that addresses unequal access to SHD and quality employment, particularly those differences related to gender and age and their intersection with other aspects of social disadvantage.

### Knowledge base

The Program will build on research including the 2021 CGIAR review on gender equality, women’s empowerment, and food systems; the 2020 *Global Nutrition Report* on equity; the 2020 *State of Food Security and Nutrition in the World* on the (un)affordability of health diets; the 2023 *Status of Women in Agrifood Systems* (FAO), and the IFAD Rural Development Report on Youth.<sup>25-26,32</sup> An evidence gap remains on the differential participation and benefit of women and youth in these systems.

### Research questions

The Program will seek to fill evidence gaps by addressing two types of research questions. First, it aims to *understand equity issues* in food systems principally related to gender, but also youth and other marginalized groups. How do these inequities create barriers to SHD and limit the potential of food systems to provide decent work opportunities for women and youth? This will include generating age- and sex-disaggregated data on what people are eating, why, and where they procure their food; explore how it is sold; and understand how market systems work to provide that food.

Second, it aims to *inform solutions* that will deliver SHD to women and youth while leveraging FST to increase their incomes. How can such solutions best be designed and implemented throughout the food system? This work includes studying opportunities to boost demand for SHD, including empowering women to make better

food choices and looking for entry points along the value chain for integrating members of marginalized groups. The Program will also examine innovations to help market system actors deliver more nutritious, safe, affordable, and sustainably produced foods and offer better jobs to women and youth.

## Results and TOC

Addressing these questions is a key component of the research in this Program. Research addressing gender- and youth-related questions flows throughout the TOC. For example, several Program-level HLOs will prioritize solutions to benefit women and youth. Capacity-sharing outputs will be designed to be inclusive of women and youth, and policy engagement and support will explicitly target gender-sensitive strategies. This gender and youth focus in these outputs will ensure that the knowledge generated will flow through the change process to result in the adoption of gender- and youth-sensitive policies as part of the intermediate and 2030 outcomes, contributing to the IA targets.

The Program also includes several outputs and outcomes that specifically address gender and/or youth at the Program and AoW level:

- *Program-level HLO:* Tested and adapted gender-transformative solutions support equitable diet, nutrition, and income impacts across the food system.
- *Program-level 2030 outcome:* Market systems actors provide safe, affordable and attractive SHDs while ensuring high quality employment for women.
- *AoW 1 HLO:* Tested food system solutions leverage market-oriented opportunities to deliver healthy foods and improve the income and employment of women and youth in particular.
- *AoW 1 intermediate outcome:* Government actors make evidence-based decisions about which MSME and informal actor-oriented solutions to incorporate into policies and programs that maintain or increase decent employment and income opportunities, particularly for women.
- *AoW 2 HLO:* Tested solutions increase incomes and quality employment opportunities for women and youth in market systems for healthy foods.
- *AoW 2 2030 outcome:* Market system actors increase the availability and affordability of healthy foods and offer improved employment opportunities for women and youth.
- *AoW 5 HLO:* Tested and adapted gender-transformative solutions support equitable diet, nutrition, and income impacts across the food system.

## Resources and capacity

The Program will need financial resourcing to support one or more gender and social inclusion specialists, who will serve as the focal point(s) for interacting with the Gender Equality and Inclusion Accelerator and provide this Program with gender-relevant expertise. As part of this Program's orientation, all research staff will be trained on inclusive principles and gender-aware research design during the first year of operation.

## 12. Climate change

### Known impacts of climate change on the Program's Areas of Work and related risks

Climate change poses significant challenges to global food systems, threatening food security, nutrition, and sustainable development, with marginalized populations being disproportionately affected.

Food systems contribute 19–38% of global greenhouse gas (GHG) emissions, especially in LMICs where agriculture and land-use changes are major sources of emissions.<sup>33</sup> While nationally determined contributions (NDCs) target these areas, emissions from post-farmgate activities are on the rise and are expected to increase, becoming major contributors in the coming decade.<sup>34</sup> Reducing emissions will require nature-positive changes in land use, sustainable and efficient production methods and food supply chain management, and food loss and waste reduction.

On the other hand, climate change negatively impacts diets and health by reducing food quality, diversity, and affordability.<sup>35</sup> Climate variability and extreme weather drive up prices, making nutrient-rich foods less accessible to vulnerable populations. Rising temperatures, high greenhouse gas concentration levels, and shifting precipitation patterns reduce crop yields, nutrient density, and fish populations, exacerbating risks of malnutrition in LMICs.<sup>36-37</sup>

While regenerative agriculture can sequester carbon and boost productivity, climate change is projected to cause serious health consequences, including 529,000 additional deaths by 2050 due to reduced access to fruits and vegetables.<sup>38-40</sup> SHD could mitigate climate change, with dietary transitions potentially cutting GHG emissions by 40–70%.<sup>41</sup> However, adopting SHD requires overcoming challenges in affordability and cultural preferences.<sup>16</sup> Though plant-based diets lower emissions, improving nutrition in LMICs may require more ASF, which carry higher environmental impacts, highlighting the trade-offs between nutrition and sustainability.<sup>8,39</sup> One third of food supplies is either lost in inefficient food value chains or wasted at the consumer level. Food loss and waste is highest for perishable foods important to healthy diets. Reducing food loss and waste is thus critical both for making healthy diets more affordable and for reducing GHG emissions.

### Planned work on translating science into climate policies and action

Research in Better Diets and Nutrition aims to understand and promote sustainable practices within food environments. This includes assessing the environmental sustainability of various diets and identifying ways to minimize their environmental impact without sacrificing diet quality.<sup>42</sup> Understanding how consumers view sustainability as a factor in shaping dietary choices in LMIC settings will be a critical part of the research agenda in AoW 1. The Program will also aim to identify which climate adaptation and mitigation strategies risk sacrificing diet quality. AoW 2 research will explore the role of food storage technologies and other innovations in reducing GHG emissions while ensuring food safety.<sup>43</sup> AoW 6, in collaboration with other groups engaged in shaping comprehensive national plans for FST and nutrition action plans, will work on integrating nutrition-focused food system considerations into climate adaptation and mitigation strategies. This work will include promoting decision-support tools such as the Food Forward NDC tool and convening multisectoral dialogues.

By maintaining close linkages with both national and global policy and dialogue platforms such as the Conference of the Parties 28 (COP28) follow-up Technical Cooperation Collaborative, the G20, the UN General Assembly, and the Nutrition for Growth Summit, the Program will ensure that CGIAR science on diets and nutrition is featured prominently in these efforts. The insights generated will guide policymakers and stakeholders in developing strategies that support resilient, sustainable food systems and linked actions in other sectors that are aligned with environmental, dietary, and nutritional goals.

### Planned work on climate change adaptation

This Program will focus on developing adaptation strategies to enhance resilience to climate shocks. It will research resilient production and delivery systems from end-to-end (production to consumption) for SHD. Through linkages with Climate Action, it will promote climate-resilient dietary strategies to improve nutrition. Collaborating with partners within the climate change adaptation space, this Program will tailor scalable solutions, strengthen food supply chains, promote dietary diversification, and encourage sustainable practices while shifting to SHD.

Work in AoW 5 on identifying the role of rapidly deployable social safety nets in times of crises such as weather or other climate-induced economic shocks will support an understanding of how to help consumers adapt in ways that support better diets and nutrition even in times of crisis.

### Planned work on climate change mitigation

This Program will leverage its end-to-end approach through linkages with Sustainable Farming to promote sustainable agricultural practices for nutrient-rich crops, including climate-smart agriculture, precision agriculture, and soil health management to enhance carbon sequestration and reduce emissions. Research will focus on how to improve supply chain efficiency, promote solar-powered cold storage systems and sustainable food processing, and encourage local, seasonal food consumption to further minimize emissions. The Program will evaluate the impacts of public awareness campaigns, consumer incentives for sustainable choices, and food waste reduction initiatives.

## 13. Risk management

*Risks will be finalized and mitigation actions will be developed as part of the risk management plan during the Inception Phase.*

**Table 13.1.** Five risks specific to the Program

Risk title	Risk statement including potential event, sources, and consequences on objectives
Frequent staff turnover among mission-critical partners	High staff turnover among mission-critical partners, especially policymakers who are critical in shaping the enabling environment, in the target countries for this Program can stall progress on research, capacity sharing, and scaling. As a result, this Program and its partners may miss windows of opportunity to contribute evidence-based policy and programming innovations for SHD.
Inability to find the right incentives for food system actors to use innovations	Scaling partners of this Program may be unable to incentivize consumers, market actors, and other food system actors to use evidence-based innovations designed to overcome challenges to SHD and/or provide high-quality employment for women. This risk could be driven by conflict, climate crises, or political events that make standard incentive use impossible. This Program may not be able to realize the aspirations that stakeholders expected in the target countries.
Lack of knowledge, skills, and/or resources to manage and resolve conflicts in multisectoral coalitions	Conflicts and disagreements about priorities for improving diets and achieving nutrition outcomes persist because individual and institutional stakeholders do not understand one another and/or lack the ability to resolve them in the context of resource competition. Coalitions of food system and nutrition actors may thus be less effective in implementing innovations designed to promote SHD, meet social needs, and minimize environmental impacts.
Power of global food industry	The global food industry has enormous resources and job creation capacity that it uses to influence consumers to choose foods that are harmful to human health and environmental biodiversity. Unless the industry changes (or is forced to change) its practices and dietary patterns in the target countries may not measurably improve in ways that improve human health or protect environmental biodiversity.
Misaligned priorities and messaging in CGIAR around sustainable healthy diets and nutrition	Misaligned priorities and messaging by CGIAR Programs/Accelerators can undermine the efforts of food system actors to implement evidence-based policy and programming innovations. Target countries of this Program may not be able to achieve measurable positive changes in the consumption of SHD or minimize risks to nutrition impacts.

## 14. Funding sources

The value of bilateral resources substantially exceeds the value of pooled resources.

- Pooled funds (baseline scenario): USD 21.55M
- Bilateral funds: USD 56.99M
- Total: USD 78.54M

Overall, the AoWs centered on core food system topics (AoWs 1, 2, 3 and 4) have a well-balanced portfolio of resources. The current resource pool for AoWs 5 and 6 is somewhat lower, likely because these two AoWs are often considered as being outside the remit of food systems research funding. Their inclusion in the Program signals their role as key areas of investment to ensure stronger impacts on nutrition outcomes.

In line with the huge challenge of poor diets and nutrition and with the critical importance of scaling science-based innovations and delivering evidence-informed policies to shape a better future for people, the current resource envelope for this Program should at least be **doubled**.

**Table 14.1** shows the high-level breakdown of pooled funding by AoW. The basis of this distribution is the mapping of the 2022-2024 Initiative Work Packages (WPs) to the Program's AoWs. The Initiatives with pooled funding mapped to Better Diets and Nutrition are primarily funded by targeted donor-designated funds, notably to FRESH, Rethinking Food Markets, and SHiFT. Some funding from SAPLING is mapped to this Program for inclusion of animal- and aquatic foods in AoW 3, as well as some funding from One Health for inclusion of food safety in AoW 2. Funding from the Nutrition Impact Platform is mapped to AoW 6. Preserving the funding allocated to these Initiatives within the relevant AoWs will ensure science and partnership continuity from the 2022-24 Portfolio. Within each AoW, there is ample scope to expand, amplify and leverage the early investments in the Initiatives as part of this new Portfolio.

Ten percent of the pooled funding from the constituent Initiatives has been reassigned to AoWs 3, 4 and 5 to partly make up for the absence of "mapped continuity funding" in these new areas. These funds will support catalytic efforts to develop AoWs 4 and 5 and sub-AoW 3.2.

A detailed description of the use of pooled funding in the different AoWs of this Program can be found in the Pooled Funding Annex.

**Table 14.1.** Breakdown of preliminary pooled funding between AoWs in the baseline scenario for 2025 (USD)

Area of Work	Pooled funding (2025)
AoW 1: Consumers and food environments	7,813,147.50
AoW 2: Market systems	3,470,751.00
AoW 3: End-to-end solutions	7,311,339.60
AoW 4: Biofortified and health-enhancing staples	1,023,410.50
AoW 5: Multisectoral systems	1,023,410.50
AoW 6: Transformative leadership	903,420.00
<b>Total</b>	<b>21,545,479</b>

**Table 14.2** presents a summary of the bilateral funding available for the Program. AfricaRice, the Alliance of Bioversity International and CIAT, CIMMYT, CIP, ICARDA, ICRISAT, IFPRI, IITA, ILRI, IRRI, WorldFish, and the World Vegetable Center (WorldVeg) have mapped 45 key bilateral projects to Better Diets and Nutrition, for a total of USD 50.60M for the period 2025-2030.

Bilateral funding is concentrated in AoW 2 (22%), AoW 3 (19%), and AoW 4 (27%). Fewer bilateral projects are mapped to AoW 1 (USD 2.1M). This is because challenges related to consumers and food environments have only recently started to receive more attention; in addition, these topics are often embedded in larger projects mapped to other AoWs or Programs. Most of the bilateral funding mapped to AoW 5 (USD 6.5M) and AoW 6 (USD 4.0M) corresponds to IFPRI's work on these topics.

**Table 14.2.** Breakdown of bilateral funding between AoWs (USD)

Area of Work	Bilateral funding (USD)
AoW 1: Consumers and food environments	2,115,197
AoW 2: Market systems	12,361,719
AoW 3: End-to-end solutions	11,019,882
AoW 4: Biofortified and health-enhancing staples	15,528,284
AoW 5: Multisectoral systems	6,542,836
AoW 6: Transformative leadership	4,040,255
Currently unmapped to any AoW (to be confirmed)	5,367,051
<b>Total</b>	<b>56,975,224</b>

**Table 14.3** shows the list of bilaterally funded projects with an estimated balance of funding greater than USD 250,000 from January 1, 2025 which have been mapped to Better Diets and Nutrition.

**Table 14.3.** Key bilateral projects

Project/program title	Lead CGIAR Center	Funder	Duration (end date)	Expected 2025-2030 funding	Relevant AoW, if known
Climate-resilient agroecological transitions of agri-food systems	CIAT	National University of Ireland (NUI)	9/30/2026	\$435,306	AoW 1
Combating malnutrition in Africa through Diversification of the Food system	Bioversity International	European Commission (EC)	12/31/2028	\$414,660	AoW 1
BRECOMA	AfricaRice	European Commission (EC)	1/31/2025	\$331,256	AoW 1
Bihar Centre Of Excellence For Millets Value Chain (BCoEMVC)	ICRISAT	Government of Bihar	3/31/2028	\$4,170,536	AoW 2
Food Safety for Africa	IITA	European Union (EU)	11/30/2027	\$1,641,298	AoW 2
Omnichannel Digital Assistant for Smallholder Farmers in Kenya and Bihar, India	IFPRI	Viamo	7/12/2027	\$1,527,158	AoW 2
Seeding the Future Global Food System Challenge Award Agreement	IFPRI	IFT	7/12/2027	\$1,527,158	AoW 2
Generating Revenues and Opportunities for Women to Improve Nutrition in Ghana (GROWING)	CIP	Department of Foreign Affairs, Trade and Development (DFATD)	9/30/2026	\$1,026,658	AoW 2
Smallholder access to Solar	IFPRI	Japan	7/3/2026	\$630,583	AoW 2
PRIMA: Development of sustainable and nutraceutical Mediterranean style breads through cost-effective solutions reducing grain losses and food wastes	ICARDA	Partnership for Research and Innovation in the Mediterranean Area (PRIMA)	8/31/2028	\$500,000	AoW 2
Technology Interventions to increase Sesame area and productivity in Odisha	ICRISAT	India-Department of Agriculture and Farmers' Empowerment, Government of Odisha	3/31/2027	\$340,530	AoW 2
Asia-Africa Bluetech Superhighway Project	WorldFish	Foreign, Commonwealth and Development Office (FCDO)	3/31/1930	\$4,327,053	AoW 3
Small-Scale Aquaculture Investments for Livelihoods (SAIL)	WorldFish	United States Agency for International Development (USAID)	9/14/2027	\$2,700,000	AoW 3
Generating evidence on a nutrient dense diet centered approach to support Ethiopia's food systems transformation pathway	ILRI	International Development Research Centre (IDRC)	4/30/2025	\$728,975	AoW 3
PIC More Veg: Driving vegetable food environments to promote healthy diets in Pacific Island Countries	WorldVeg	Australian Centre for International Agricultural Research (ACIAR)	3/19/2025	\$365,881	AoW 3
Opportunity vegetables: reducing poverty and enhancing food and nutrition security in the face of climate change with underutilized vegetable species	WorldVeg	Foreign, Commonwealth and Development Office (FCDO)	4/30/2026	\$2,528,900	AoW 3
Meals Programs in India: Addressing Micronutrient Deficiencies of Schoolchildren	IFPRI	Happel Foundation	6/6/2028	\$2,588,632	AoW 4

Project/program title	Lead CGIAR Center	Funder	Duration (end date)	Expected 2025-2030 funding	Relevant AoW, if known
Verify global potential of biologic. Nitrific. inhibition	CIMMYT	Novo Nordisk Fonden (NNF)	7/12/2029	\$1,783,202	AoW 4
Scaling Iron Beans in Malawi, Pilot Program	IFPRI	Greater Horizons	7/12/2027	\$1,527,158	AoW 4
Implementation Agreement between World Vision Canada and IFPRI on behalf of its HarvestPlus Program	IFPRI	Department of Foreign Affairs, Trade and Development (DFATD)	7/12/2027	\$1,527,158	AoW 4
HP-GAC-ENFS	IFPRI	Department of Foreign Affairs, Trade and Development (DFATD)	7/12/2027	\$1,527,158	AoW 4
PH4 BMGF	IFPRI	Bill & Melinda Gates Foundation (BMGF)	7/3/2026	\$1,192,574	AoW 4
Seg.aliment. y nutric.para comunidades rurales Edo Q. Roo	CIMMYT	Gobierno de Quintana Roo	7/5/2030	\$933,440	AoW 4
Enhancing Agricultural Recovery and Combatting Malnutrition in Drought-Affected Southern Madagascar Utilizing Nutritious, Climate-Resilient Vitamin A Sweetpotato (Sweet Recovery).	CIP	United States Agency for International Development (USAID)	12/31/2024	\$900,000	AoW 4
Development and promotion of aflatoxin biological control in groundnut, sorghum, sesame, and cottonseed value chains	IITA	Agence Française de Développement (AFD)	9/30/2025	\$841,711	AoW 4
ISARC Phase II	IRRI	India-Department of Agriculture and Cooperation and Farmers Welfare	3/31/2027	\$626,076	AoW 4
Promoting Self Help Group-led Entrepreneurship through Rice Value Addition	IRRI	India-Department of Agriculture and Farmers' Empowerment, Government of Odisha	8/26/2027	\$612,498	AoW 4
Emergency and livelihood recovery support through potato and sweetpotato interventions - BHA2 Ethiopia	CIP	United States Agency for International Development (USAID)	6/31/2026	\$511,767	AoW 4
Aflatox - gene editing for reducing aflatoxin in groundnuts	CIMMYT	Bill & Melinda Gates Foundation (BMGF)	7/1/2025	\$387,049	AoW 4
Leveraging Social Transfer Programs in Bangladesh for Improved Nutrition Outcomes	IFPRI	Bill & Melinda Gates Foundation (BMGF)	6/9/2026	\$1,555,180	AoW 5
WASTING DETECTION&TREATME	IFPRI	UNICEF	7/8/2027	\$1,363,310	AoW 5
KTM SCHOOL FEED	IFPRI	Alliance for a Green Revolution in Africa (AGRA)	7/7/2027	\$1,055,814	AoW 5
CHILD SCHOOL LUNCH-GHANA	IFPRI	Japan	7/3/2026	\$906,491	AoW 5
Supporting preparation work of CCCAP in China	CIP	China-Ministry of Finance	12/31/2024	\$375,000	AoW 5
EFFECTIVENESS OF BEP	IFPRI	AKU	7/3/2026	\$346,217	AoW 5

Project/program title	Lead CGIAR Center	Funder	Duration (end date)	Expected 2025-2030 funding	Relevant AoW, if known
Partnerships & Opportunities for Strengthening and Harmonizing Actions for Nutrition in India - Phase 3 (POSHAN-3)	IFPRI	Bill & Melinda Gates Foundation (BMGF)	6/5/2027	\$1,670,836	AoW 6
NUTRITION STATUS-BIHAR&OD	IFPRI	Bill & Melinda Gates Foundation (BMGF)	7/10/2026	\$962,063	AoW 6
NIPN ETHIOPIA PHASE 2-K4N	IFPRI	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)	7/12/2026	\$454,968	AoW 6
Political Eco of Large Scale Food Fortification	IFPRI	Bill & Melinda Gates Foundation (BMGF)	7/12/2026	\$329,305	AoW 6
POSHAN III	IFPRI	FHI	6/4/2026	\$297,730	AoW 6
DATADENT 2.0	IFPRI	Johns Hopkins University	7/10/2025	\$271,147	AoW 6
Food Systems Resilience Program	IITA	World Bank	4/30/2027	\$1,535,714	
Combating Malnutrition in Africa Through Diversification of the Food System (HealthyDiets4Africa)	IITA	European Union (EU)	31/12/2028	\$529,166	
Building Resilient Seed Systems for Rice, Cassava, Cowpea, Cocoa, and Fish Value Chains.	IITA	European Union (EU)	11/30/2027	\$441,055	
HealthyDiets4Africa	AfricaRice	European Commission (EC)	12/31/2028	\$353,220	

## Annex — Pooled funding

### How pooled-funded work will build on the work of the 2022-24 Initiatives

This Program builds primarily on work of Initiatives including [FRESH](#), [SHiFT](#), Rethinking Food Markets (RFM), the [Nutrition Impact Platform](#), and one WP each from the Sustainable Animal Productivity (SAPLING) and [One Health Initiatives](#).

[FRESH](#) started by laying a strong foundation both in terms of understanding the relevant challenges, their drivers and possible solutions as well as building robust partnerships and generating buy-in from a range of national and international stakeholders. FRESH conducted extensive reviews, foresight analysis, quantitative and qualitative research to understand the dietary patterns, food environments, post-harvest F&V practices, vegetable farming practices as well as the context specific opportunities and constraints for addressing the identified constraints. Additionally, adaptive trials, rescues, variety trials and multi-location evaluations and other activities related to improving vegetable cultivars and preserving biodiversity were conducted. Lastly, two randomized controlled trials were started in Tanzania and Sri Lanka to test the effectiveness of the end-to-end approach and the additional benefits of adding demand and food environment interventions to supply side interventions. Baselines have been conducted in both countries with Tanzania having had a second round of data collection to assess the impact of the supply side activities in 2024. We plan to continue these studies through the Science Program Phase.

[SHiFT](#) started in Ethiopia, Bangladesh, and Viet Nam. SHiFT used quantitative and qualitative methods to understand the determinants of household dietary choices with a focus on adolescents; explored the interface between consumer households and their food environments in urban, peri-urban and rural settings; and began identifying possible solutions to improve the consumption of SHD. This was complemented by work on the use of foresight modelling and participatory scenarios to explore future pathways. This work was anchored in deep engagement and capacity sharing with strategic partners – organizations tasked with the design and implementation of FST-NAPs in each country – to build common language and understanding in support of SHD. This Program anticipates deploying pooled resources to deepen AoW 1's work in the SHiFT countries and expand to new countries. In Ethiopia, Bangladesh and Viet Nam, the focus will be on: (i) the evaluation of solutions to support SHD at the interface between consumers and their food environments using tools such as labeling, taxation, school feeding programs and BCC; (ii) policy innovations focused on rolling out and improving the governance of FST-NAP activities from the national to subnational scale; and (iii) capacity sharing to build large-scale networks or change agents with a common language and skillset for FST in support of SHD. In new countries (Honduras, Senegal, Guatemala and Benin), this Program anticipates implementing an adapted version of the SHiFT ToC anchored in strong partnerships with FST-NAP convenors from the agriculture and health sectors, policymakers, local civil society, and academic partners.

Previous pooled funding in the [Nutrition Impact Platform](#) to convene, amplify, and build capacity will be carried into AoW 6, with new work on testing new knowledge products, methodologies, and engagements. Working with other AoWs within this Program,

and across CGIAR, AoW 6 will develop, implement and disseminate knowledge and capacity packages to influence global and regional agendas on FST, frame research priorities with the donor community and partners, and amplify evidence-based solutions and innovations to broader stakeholders.

[RFM](#) initiated research related to quality assurance, efficiency-enhancing innovations, inclusive value chain contracting, and financial innovations focusing on value chains for healthy foods in Bangladesh, Ethiopia, Guatemala/Honduras, Nigeria and Uganda, which will be continued as part of this Program's AoW 2. The pooled funding will further serve to continue updating the [AgIncentives](#) database of food system policy indicators and the global and country model-based scenario analysis to assess impacts and trade-offs of scaled innovations and reformed policy support. AoW 2 will also continue work initiated in [One Health](#) on addressing food safety issues and reducing risk exposure in informal value chains, which was conducted in Viet Nam, Ethiopia, and Kenya.

[SAPLING](#) implemented its WP2 on “Innovation for safe consumption of livestock-derived foods” in Vietnam and Uganda. There were two main workstreams: (a) designing and piloting a framework (FoodSENSE), drawing on food environment and food system theories to identify the barriers to food and nutrition security and guide prioritization of nutrition related interventions and (b) co-designing social behavior change communication (SBCC) interventions with partners that improve nutrition knowledge and address norms to demystify consumption of ASF by women and children to enhance food choice decisionmaking. An innovative part of the intervention is that the campaigns are tailored to gender. AoW 3 plans to: (i) evaluate and refine the framework based on the results from the pilots, explore integration of remote sensed data, and further build capacities of organizations using the toolkit, (ii) build on the SBCC intervention to evaluate its impact and further strengthen the capacities of scaling partners on gender-sensitive nutrition interventions. The focus will shift from livestock keepers to consumers more broadly.

Some work under Accelerated Breeding, Genebanks, and Market Intelligence will inform priorities for research in AoW 4 on strengthening the impact of biofortified and health-enhancing staple foods. Research by nutrition teams in TAFSSA will be tied more strongly to this Program through the collaboration with the Scaling for Impact Program. Relevant research included assessments of potential solutions to tackle the affordability of healthy diets, global evidence review on strategies to address the consumption of unhealthy foods in BCC programs, a regional review of NSSP programs, and innovative measurement work on understanding how gender dynamics operate across the food system.

### Pooled-funded workstreams from 2022–24 that are being discontinued

Previously funded work in SHiFT on foresight analysis using global models will transition to the Policy Innovations Program while the participatory scenario analysis of the results will remain in this Program (AoW 1). Any new data collection using large-scale surveys to analyze existing household consumption and individual dietary intake in AoW 1 will be limited to new countries where recent surveys (2020 or later) are unavailable or incomplete. This Program does not plan to continue the extensive review work that was conducted under FRESH, unless expanding to new countries or towards the end of the Program to see how the science has evolved. FRESH conducted foresight analyses in Benin and Tanzania

and consider these activities complete. This Program will decrease breeding work on global vegetables and shift the focus more to underutilized species and biodiversity in AoW 3. This Program will not include the portfolio management workstream of the Nutrition Impact Platform, as that task will be consolidated under the new management structure of CGIAR.

### **New and emerging areas funded by pooled funding**

Emerging work in this Program will include research activities in AoW 1 on diets and (a) food safety, (b) environmental sustainability, and (c) climate change, plus more emphasis on the identification and testing of solutions that generate synergies across those agendas. The emerging work will include activities to support national partners to connect the diets and nutrition agenda (national and global) with these other agendas within the FST-NAPs, in particular. The overall work will include greater attention to gender and equity issues.

In AoW 2, the new research will include (a) expanding work on quality assurance, food safety, efficiency-enhancing innovations, inclusive value chain contracting, and financial innovations focusing on market systems for healthy foods to other priority countries; (b) reorienting support policies and market incentives and the role of trade and multilateral trading rules in promoting SHD; (c) role of food market concentration and impact on supply and demand for unhealthy foods; and (d) measurement and prevention of food loss and waste in supply chains for healthy foods.

In AoW 3, the focus will shift to the iterative co-design and testing of different types of end-to-end solutions in target countries. In the first phase, FRESH put in place two evaluation platforms for this in Tanzania and Sri Lanka, begun implementation of the supply side solutions and started the co-design process for the demand and food environment solutions to bundle with the supply side solutions. Similar efforts have started in the Philippines and there is keen interest to do the same in Benin. In the first phase, FRESH conducted extensive literature reviews, qualitative research and pilot tests of some solutions which have laid a solid foundation for AoW 3 to build on. In addition, FRESH has invested heavily in building well-functioning partnerships across international and national stakeholders across food systems actors along with connecting to other sectors. In addition to the focus on co-designing and testing solutions going forward, AoW 3 is looking to expand the work on food safety from consumers to producers, both understanding the extent of the challenges as well as integrating tested solutions into end-to-end approaches where relevant. Lastly, the model FRESH built has had some success, and thus, there is interest in creating a blueprint of how to apply this approach in other countries and for other commodities.

Emerging work for aquatic foods will include research in AoW 3 on (a) measuring the cost of nutritious diets that include animal and aquatic foods and collaborating with Sustainable Animal and Aquatic Foods to identify and test interventions to lower costs through market system interventions and (b) building on the SAPLING work to co-design, test and evaluate multichannel approaches to address constraints to animal and aquatic food consumption.

AoW 4 will prioritize a strategic stakeholder meeting to assess the current landscape for biofortification, establish alignment, reinforce existing connections, and outline a strategic pathway to support the research efforts within the Better Diets and Nutrition Program. This meeting will also lay the groundwork for building

the transdisciplinary community of practice outlined in the AoW 4 Theory of Change. There is an urgent need for efficacy trial work for iron-potato, low-glycemic index rice, and calcium-finger millet, so that validated products can start to reach consumers. The pooled funding will be prioritized to support a senior Food Technologist with private sector agro-processing experience to catalyze and guide AoW 4's development of healthier, economically viable processed products and complementary foods using biofortified crops and other nutrient-rich foods as key ingredients. Another new area will be to conduct a review of diverse experiences disseminating and promoting distinct biofortified crops in different settings and analyze the extent of consumer uptake and evolving demand.

Pooled funds will be used to explore deeper collaboration with the Gender Equality and Inclusion Accelerator. Emerging work in AoW 5 will include a deep dive into the effectiveness of community-based, gender transformative nutrition components of multi-crop (biofortified crop and vegetables) efforts on nutrition outcomes and the potential integration into national systems.

AoW 4 and AoW 5 will collaboratively explore linkages with school meal and social safety net programs. Since 2020, the cultivation of biofortified vitamin A-sweet potato and iron-beans and several vegetables have been promoted in Kenya and Northern Uganda as part of humanitarian assistance to build resilience, in partnership with the World Food Programme (WFP) and will end in December 2024. WFP plans to use the model in other settings, and support for generating evidence on how the intervention build resilience and enhanced nutritional outcomes could help generate insights on the scalability of this model.

Other new and emerging areas include the co-development, testing, and MEL of knowledge products and capacity building modules on FST for better diets and nutrition within targeted CoPs and platforms, emphasizing the importance of delivering impactful local solutions to meet global targets. AoW 6 will take on targeted improvement in food systems and nutrition leadership within CGIAR and with external stakeholders, realizing the objective to increase quality and quantity of individual and institutional leaders who can effectively interface CGIAR's science with global, regional and national policies, people and partnership. Work will include contextualizing global and regional food systems and food and nutrition security agenda (e.g. [EAT-Lancet 2.0](#), the [Chefs' Manifesto](#), and the [COP28 UAE Declaration on Sustainable Agriculture, Resilient Food Systems, and Climate Action](#)) into CGIAR research and innovation priorities.

This Program would like to initiate a trans-disciplinary CoP for biofortified crops and health-enhancing staples that would allow AoW 4 (with AoW 6 support) to take stock of the current landscape, build consensus on collaborative efforts, and design a clear path forward.

### **Previously bilaterally funded workstreams that are being proposed for pooled funding**

Research on market concentration, trade, and food loss and waste was previously bilaterally funded and is proposed to be integrated in AoW 2 with pooled funding. AoW 2 intends to leverage the program of work for pooled funding and seek complementary bilateral funding, specifically for reorienting agricultural and food policies for better diets, innovations in finance and logistics, and testing of quality assurance.

Most work done described in AoW 5 has been bilaterally funded. This Program will explore the potential for pooled funding to support stronger connections between food systems research and health systems, social safety net programs, water-energy programs and policies, and more.

This Program will incorporate work on knowledge development and dissemination, and capacity building, from bilaterally funded projects, as part of AoW 6. Pooled funds could be used to support (i) work with relevant bilateral projects, such as POSHAN, led by IFPRI, and other leadership development efforts. [Delivering for Nutrition](#) was first conceived as a regional platform for convening and capacity sharing in a combined effort anchored in TAFSSA but supported by all the nutrition Initiatives/Platform. It will be integrated into this Program.

### **Specific geographies or partners that will be targeted with pooled funding and the work that will be undertaken there**

AoW 1 proposes to continue work in Bangladesh, Ethiopia and Viet Nam where SHiFT was engaged, and expand to Honduras, Senegal and possibly Guatemala and Benin, if funding permits. In each geography, the Program will establish a Country Coordination Unit with a local country coordinator and the FST-NAP implementation partners responsible for designing and implementing agreed upon joint research efforts. Pooled funding will be used to support these activities combining local demands and capacities with international knowledge and skills for shared learning and action in favor of SHD.

The provisional target countries for AoW 2 include Bangladesh, Ethiopia, Guatemala/Honduras, Nigeria and Uganda. It is envisaged that collaboration with established partners in these countries, especially national research institutes, private food system operators, and policymakers, will continue, but also new partners, especially food system operators, will be engaged where new food value chains are included in this Program. The pooled funding will support global and regional level analysis on (a) internationally concerted scenarios for repurposed policy support; (b) trade integration and nutrition (global and Africa and South Asia); and (c) market concentration (Asia and Latin America).

AoW 3 proposes to continue work in Benin, the Philippines, Sri Lanka, Tanzania (where FRESH was engaged) and Ethiopia, Uganda, and Viet Nam (where SAPLING was engaged) and expand to Fiji, Kenya, Nepal, Rwanda, and Tanzania, if funding permits. Collaboration with established partners in these countries particularly Ministries of Health, Agriculture and Livestock, Local Government, Social Welfare the private sector involved in the F&V, animal and aquatic value chains and the universities will continue. Where needed, new partners will be engaged. Pooled funding will be used to support co-created solutions to address constraints to SHD and rigorous evaluations to develop the evidence-base to understand what works, why and the relative cost-effectiveness of different solutions.

Partners for the efficacy research listed under AoW 4 will include local institutes in relevant countries, for example, Peru for iron-potato. Product development work will initially be focused in Ghana, Kenya, Nigeria, and Uganda. The countries and crops for review would be decided upon at the initial CoP gatherings.

The potential target countries for AoW 5 include Bangladesh, Ethiopia, Ghana, India, Kenya, Nigeria, and Uganda. These are also countries (i) with the largest populations who cannot afford healthy diets, (ii) with significant challenges to gender inequality, and (iii) where bilateral funding can support the use of catalytic pooled funds.

AoW 6 will work with global and regional partners in food systems, across the six geographies identified in the 2030 CGIAR Research and Innovation Strategy. This includes platforms such as the UN Food Systems Coordination Hub and National Convenors, UN Nutrition, ANH Academy, AUDA-New Partnership for Africa's Development, Association of Southeast Asian Nations, South Asian Association for Regional Cooperation, and Delivering for Nutrition, and partners such as the UN Rome-based agencies, World Health Organization, International Fund for Agricultural Development, and the SUN Movement) to strengthen agendas on food and nutrition security. AoW 6 intends to increase momentum on South-South collaboration, especially through local universities, research institutions and national diets and nutrition research communities to realize the outlined objectives of the work.

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# Better Diets and Nutrition Program

## Appendix

November 15, 2024

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## Appendix 1. Supplementary tables for Section 3 on prioritization

**Table A1.1.** High-level outputs for Better Diets and Nutrition

High-level output	Impact pathway	High-level output description
Consumer-oriented food system solutions for SHD	Innovation	Tested food system solutions tackling consumer-oriented constraints to SHD.
Market-oriented food system solutions for SHD	Innovation	Tested food system solutions leveraging market-oriented opportunities to deliver healthy, nutrient-rich, and safe foods and improve income and employment of women and youth, in particular.
End-to-end food system solutions for PNR foods to support SHD	Innovation	Tested and adapted end-to-end food system solutions addressing the desirability, affordability, accessibility, availability, and policy constraints for PNR.
Solutions for integrating biofortified and health-enhanced staples into food systems	Innovation	Tested new and existing biofortified and health-enhancing staples and derived processed products using biofortified ingredients through inclusive value chains that ensure reliable supply of affordable micronutrients, improve the livelihoods and resilience for farmers, and diet quality for consumers.
Multisectoral solutions for SHD and nutrition	Innovation	Tested and adapted multisectoral solutions to deliver equitable impacts on diet and nutrition outcomes by addressing the accessibility, affordability, and desirability of SHD.
Gender transformative solutions for SHD, nutrition, income, and employment	Innovation	Tested and adapted gender-transformative solutions to support equitable diet, nutrition, and income impacts across the food system, and linked with other sectors, with significant equity improvement for women.
Climate-sensitive solutions for SHD and nutrition	Innovation	Tested and adapted climate-resilient and environmentally sustainable demand-side innovations (e.g., nutrition-sensitive adaptive social safety nets) to support equitable diet, nutrition, and climate impacts across the food system.
Capacity sharing for FST solutions supporting SHD	Capacity	Capacity sharing activities for designing and implementing solutions in support of FST that delivers SHD and nutrition and health impacts at national and subnational levels.
Transformative capacity sharing for diets and nutrition leadership	Capacity	Capacity sharing activities that support leaders and leadership development to deliver transformative changes, including on gender perspectives, at country, regional, and global levels for SHD and nutrition impacts.
SHD and nutrition policy and financing options	Policy	Program guidance and policy and financing options that address multiple constraints (desirability, affordability, accessibility, and availability) to SHD for women and youth in particular and private-sector participation in building healthier food systems.
SHD and nutrition policy engagement and support	Policy	Convening and evidence support to national-level policy communities developing responsible food systems transformation toward SHD, and nutrition strategies and actions.

**Note:** FST = food systems transformation. PNR = perishable nutrient-rich. SHD = sustainable healthy diets.

**Table A1.2.** Definitions, sources, and rationale of indicators used

Indicator type	Indicator name	Link	Description	Rationale
Food Systems Type	Food Systems Type	<a href="#">Food Systems Dashboard</a>	The Food Systems Dashboard created a typology that characterizes countries into one of five food system types: rural and traditional; informal and expanding; emerging and diversifying; modernizing and formalizing; and industrial and consolidated.	The complexity of food systems creates a challenge in identifying policy actions that are needed to improve human and planetary health outcomes. The food systems typology is a useful classification tool to identify similarities and differences among food systems, while reducing this analytical complexity.
Nutrition Targets in the SDGs	Stunting	WDI	Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) % children under 5 years of age	Stunting, or chronic malnutrition, is the outcome of growth faltering that takes place in utero and early childhood as a result of inadequate nutrient intake and repeated bouts of infection. Stunting is largely irreversible, and in addition to suboptimal growth outcomes, it is associated with poor cognitive development, reduced productive capacity, and poor health. Stunting may also increase risk of overweight, obesity, and noncommunicable diseases later in life.
Nutrition Targets in the SDGs	Wasting	WDI	Prevalence of wasting (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) % children under 5 years of age	Wasting, or acute malnutrition, is the loss of body weight relative to height that results from inadequate nutrition and infection. Wasting increases the risk of death and disease and is a relatively short-term condition as compared to stunting. Countries with pronounced lean seasons, in which households experience heightened food insecurity and infections, often experience seasonal fluctuations in prevalence of wasting.
Nutrition Targets in the SDGs	Overweight	WDI	Prevalence of overweight, weight for height (% of children under 5)	Overweight and obese children are at higher risk of obesity, high blood pressure, noncommunicable diseases, disability, and death later in life. Childhood overweight stems from an energy imbalance related to excess caloric intake and inadequate physical activity. Excess weight during adolescence may cause early puberty and longer-term health consequences.
Food Security and Diet Outcomes	Food Insecurity Experience Scale (FIES)	<a href="#">Food Insecurity Experience Scale</a> from FAO's Voices of the Hungry project	Prevalence of moderate or severe food insecurity in the population, based on the FIES (% of population)	The FIES is an experience-based food security scale used to produce a measure of access to food at different levels of severity that can be compared across contexts. It relies on data obtained by asking people, directly in surveys, about the occurrence of conditions and behaviors that are known to reflect constrained access to food.
Food Security and Diet Outcomes	MDD-W: Percent adult women meeting minimum dietary diversity	<a href="#">Food Systems Dashboard</a>	Share of women who consumed at least the minimum recommended food groups the previous day, which makes it more likely they consume adequate micronutrients.	Indicator of diet diversity for adult women

Indicator type	Indicator name	Link	Description	Rationale
Food Security and Diet Outcomes	MDD (IYCF): Percent children 6–23 months meeting minimum dietary diversity	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	Share of young children who consumed at least the minimum recommended food groups the previous day, which makes it more likely they consume adequate micronutrients.	Indicator of diet diversity for vulnerable child population
Food Security and Diet Outcomes	Zero fruit or vegetable consumption (adults)	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	Share of the adult population who did not consume any fruits or vegetables the previous day.	Tracer indicator for fruit and vegetable intake (major component of Better Diets and Nutrition Program)
Food Security and Diet Outcomes	Non-Communicable Disease-Risk	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The NCD-Risk score is an indicator of dietary risk factors for NCDs, based on consumption during the previous day or night of eight food groups that are negatively associated with meeting WHO recommendations on free sugar, salt, total and saturated fat, and red and processed meat. The score ranges from zero to nine expressed as an average score for the population age 15 years and older.	Composite indicator for dietary risk toward non-communicable diseases
Food Security and Diet Outcomes	Sugar-sweetened soft drink consumption	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	Share of adults who consumed sugar-sweetened soft drinks, which are generally known to be unhealthy, during the previous day.	Tracer indicator to capture unhealthy food
System Drivers	Food price volatility	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	Domestic food price volatility index measures the variation (volatility) in domestic food prices over time, measured as the relative variation in the domestic food price index, a standardized measure of the cost of a basket of goods. High values indicate a higher volatility (more variation) in food prices.	Linking between better diets and various shocks affecting prices. Strong links between food price volatility and diet diversity and nutrition risks in the literature
System Drivers	Number of people who can't afford a healthy diet	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The share of the population whose food budget is below the cost of a healthy diet.	A healthy diet is considered unaffordable in a country when its cost exceeds 52 percent of income per capita per day. This percentage accounts for a portion of income that can be credibly reserved for food, based on observations that the population in low-income countries spend, on average, 52% of their income on food, as derived from the 2017 national accounts household expenditure data of the World Bank's International Comparison Program (ICP). Income data are provided by the World Bank's Poverty and Inequality Platform. A value of zero indicates a null or a small number rounded down at the current precision level.
System Drivers	Coverage of social protection	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The share of individuals in the total population from households where at least one member participates in a social protection and labor market program, including non-contributory social safety nets (e.g., cash transfers, school feeding), contributory social insurance (e.g., old-age pension, health insurance), and labor market programs (e.g., job training, unemployment insurance).	Given the huge challenge of affordability of healthy diets (3 billion people affected), the inclusion of safety net coverage as a strategy to address affordability is a critical indicator.

Indicator type	Indicator name	Link	Description	Rationale
System Drivers	Social protection adequacy	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The total social protection benefit amount received by beneficiary households (direct and indirect beneficiaries) as a percentage of beneficiaries' post-transfer, household wealth. This includes non-contributory social safety nets and contributory social insurance with monetary transfers but excludes safety nets without a monetary transfer and labor market programs.	An indicator showing the extent to which social protection is sufficient to meet household needs. Also linked to the depth of affordability of healthy diets.
System Drivers	Agrifood systems greenhouse gas emissions	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	Production-based greenhouse gas emissions (carbon dioxide, methane, nitrous oxide and F-gases) for food systems, expressed in kT CO <sub>2</sub> eq (AR5).	Food systems account for about 30% of total anthropogenic emissions. Reducing food systems emissions is crucial to reduce the impact of climate change and reach the targets of the Paris Agreement. And it is a sub-indicator of the FAO monitoring progress toward sustainable agriculture (SDG 2.4.1).
System Drivers	Total pesticides per unit of cropland	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The use of pesticides per area of cropland (which is the sum of arable land and land under permanent crops) at national level expressed as kg active ingredient per hectare.	Linked to food safety considerations.
System Drivers	Gender Inequality Index	<a href="#">Food</a> <a href="#">Systems</a> <a href="#">Dashboard</a>	The gender inequality index reflects gender-based disadvantage in three dimensions—reproductive health, empowerment, and the labor market—for as many countries as data of reasonable quality allow. It shows the loss in potential human development due to inequality between female and male achievements in these dimensions. It ranges from 0, where women and men fare equally, to 1, where one gender fares as poorly as possible in all measured dimensions.	Gender inequality can be related to inequitable food allocation within the household. It can also impact the societal roles of men and women as it relates to agricultural production, food processing, and engagement with the food environment.

**Table A1.3.** Nutrition targets in the Sustainable Development Goals

Country	Food system type	Prevalence of stunting (% children <5 years old)	Prevalence of wasting (% children <5 years old)	Prevalence of adult overweight (%)
Bangladesh	Rural and Traditional	23.6	11	17.1
Benin	Rural and Traditional	34.1	8.3	20.4
Colombia	Modernizing and Formalizing	12.7	1.6	37.7
Egypt	Informal and Expanding	22.3	9.5	32.2
Ethiopia	Rural and Traditional	36.8	6.8	16.9
Fiji	Emerging and Diversifying	7.2	4.6	34.3
Ghana	Rural and Traditional	17.4	5.8	21.7
Guatemala	Informal and Expanding	46	0.8	35.7
Honduras	Informal and Expanding	18.7	1.9	35.3
India	Informal and Expanding	35.5	18.7	16.4
Kenya	Rural and Traditional	17.6	4.5	18.8
Madagascar	Rural and Traditional	39.8	7.2	19.1
Malawi	Rural and Traditional	35.5	2.6	18.1
Nepal	Rural and Traditional	24.8	7	17.6
Nigeria	Rural and Traditional	31.5	6.5	20.8
Philippines	Informal and Expanding	26.7	5.4	21.8
Senegal	Informal and Expanding	17.9	8.1	19.9
Solomon Islands	#N/A	31.7	8.5	33.3
Sri Lanka	Informal and Expanding	17.3	15.1	18.6
Tanzania	Rural and Traditional	30	3.1	19.8
Timor Leste	#N/A	46.7	8.3	18.4
Uganda	Informal and Expanding	25.4	3.6	17.7
Viet Nam	Informal and Expanding	19.5	4.7	16.7
Zambia	Rural and Traditional	34.6	4.2	20.4

**Table A1.4.** Food security and dietary outcome indicators

Country	Food system type	FIES (moderate or severe)	MDD-W (%)	MDD-IYCF (%)	Zero fruit or vegetable consumption (% adults)	NCD-Risk (average)	SSB consumption (%)	No. of biofortified crop(s) already released (and in testing)
Bangladesh	Rural and Traditional	31.1	58.8	33.8	14.1	1.5	10.9	4 (0)
Benin	Rural and Traditional	73.6	41.8	25.9	15.4	1.2	10.8	0 (1)
Colombia	Modernizing and Formalizing	30.7	71.7	68.6	8.9	2.6	28.4	4 (2)
Egypt	Informal and Expanding	28.5	77.5	34.7	5.9	1.6	24.4	0 (0)
Ethiopia	Rural and Traditional	58.1	24.1	13.5	37.6	0.7	11.3	2 (5)
Fiji	Emerging and Diversifying	24.2	#N/A	#N/A	#N/A	#N/A	#N/A	0 (0)
Ghana	Rural and Traditional	39.4	44.1	26.1	9.5	1.5	17.7	3 (1)
Guatemala	Informal and Expanding	59.8	77.8	59.3	10.8	3.3	49.5	3 (2)
Honduras	Informal and Expanding	56.1	72.8	60.7	16.4	3.4	57.5	2 (1)
India	Informal and Expanding	n/a	40.6	16.4	22.3	1.5	13.3	7 (2)
Kenya	Rural and Traditional	72.3	69.3	36.3	7.1	1.6	22.4	2 (4)
Madagascar	Rural and Traditional	64.9	40.3	24.7	17.3	1.7	9.1	1 (2)
Malawi	Rural and Traditional	82.4	53.1	22.8	7.9	1.2	10.5	2 (4)
Nepal	Rural and Traditional	37.4	63.9	39.7	11.1	1.6	12.7	2 (2)
Nigeria	Rural and Traditional	69.7	48.0	22.6	17.3	2.0	31.9	3 (0)
Philippines	Informal and Expanding	44.7	79.9	53.5	6.1	3.2	45.1	1 (1)
Senegal	Informal and Expanding	49.8	74.8	19.3	9.7	1.7	16.7	0 (1)
Solomon Islands	#N/A	n/a	#N/A	#N/A	#N/A	#N/A	#N/A	0 (0)
Sri Lanka	Informal and Expanding	10.9	82.1	78.4	5.8	1.6	6.7	0 (0)
Tanzania	Rural and Traditional	58.7	35.9	21.5	18.4	1.0	19.4	3 (3)
Timor Leste	#N/A	n/a	#N/A	39.8	#N/A	#N/A	#N/A	1 (0)
Uganda	Informal and Expanding	74.2	58.8	25.7	8.5	1.3	19.7	2 (6)
Viet Nam	Informal and Expanding	9	88.7	58.9	3.0	2.6	24.6	0 (0)
Zambia	Rural and Traditional	73.1	59.6	23.2	3.5	1.7	18.1	2 (0)

Note: FIES = Food Insecurity Experience Scale. MDD-W = Minimum Dietary Diversity-Women. IYCF = infant and young child feeding. NCD = noncommunicable disease. SSB=sugar-sweetened beverage. Definition of indicators used in the table: MDD-W = Percent adult women meeting minimum dietary diversity; MDD-IYCF percentage of children 6-23 months of age who consumed foods and beverages from at least five out of eight defined food groups during the previous day. F&V consumption = Zero fruit or vegetable consumption the day before. NCD-Risk Average for 15+ yrs old; and SSB consumption = Share of adults who consumed a sugar-sweetened soft drink during the previous day.

Table A1.5. System drivers

Country	Food system type	Food price volatility	Percentage (number, millions) of people who cannot afford a healthy diet	Coverage of social protection	Social protection adequacy (% of HH wealth)	Agrifood system greenhouse gas emissions per capita	Total pesticides per unit of cropland (kg/ha)	Gender Inequality Index
Bangladesh	Rural and Traditional	0.69	48.2 (82.4)	41.4	4.3	840.7	1.6	20.2
Benin	Rural and Traditional	1.14	56.8 (7.6)	18.9	22.5	1538.6	1.0	16
Colombia	Modernizing and Formalizing	0.46	36.6 (19.0)	31.8	36.9	3775.7	8.7	29.4
Egypt	Informal and Expanding	0.70	44.4 (49.3)	92.3	21.0	841.6	1.4	24.2
Ethiopia	Rural and Traditional	0.63	54.1 (66.7)	22.2	8.2	1481.4	0.2	14.3
Fiji	Emerging and Diversifying	0.93	59 (.5)	37.1	11.3	979.7	6.6	#N/A
Ghana	Rural and Traditional	0.56	63 (21.1)	17.4	87.8	592.1	1.3	21.3
Guatemala	Informal and Expanding	0.90	43.9 (7.8)	63.3	22.3	1311.4	4.8	15.8
Honduras	Informal and Expanding	0.52	39 (4.1)	14.2	17.4	1749.1	6.5	16.7
India	Informal and Expanding	0.67	55.6 (788.2)	94.0	5.2	939.8	0.4	38.1
Kenya	Rural and Traditional	0.67	79.2 (42.8)	27.4	5.9	1148.9	0.9	21.2
Madagascar	Rural and Traditional	0.57	93.6 (27.7)	5.7	#N/A	1308.1	0.2	19.1
Malawi	Rural and Traditional	0.58	89.6 (18.3)	38.3	9.7	981.6	0.6	#N/A
Nepal	Rural and Traditional	0.35	41.1 (12.6)	43.5	6.0	1277.2	0.3	18.8
Nigeria	Rural and Traditional	0.16	78.7 (172.0)	20.7	9.7	1031.2	1.4	18.4
Philippines	Informal and Expanding	0.51	48.1 (55.6)	43.0	16.9	965.4	3.4	32.2
Senegal	Informal and Expanding	0.74	49.5 (8.6)	39.0	10.1	1304.5	0.2	22.5
Solomon Islands	#N/A	0.89	#N/A	#N/A	#N/A	685.0	0.4	#N/A
Sri Lanka	Informal and Expanding	1.13	41.1 (9.0)	37.5	17.1	672.0	1.2	23.3
Tanzania	Rural and Traditional	0.64	75.5 (49.4)	12.9	13.3	2439.9	0.0	17.4
Timor Leste	#N/A	0.82	#N/A	35.3	20.6	1460.0	0.3	#N/A
Uganda	Informal and Expanding	0.75	72.5 (34.2)	1.2	20.0	1238.0	0.9	16
Vietnam	Informal and Expanding	1.12	9.4 (9.2)	34.9	22.5	1523.9	4.3	36
Zambia	Rural and Traditional	0.83	75.5 (16.4)	2.3	3.0	4029.9	1.1	16.4

## Appendix 2. Details of the comparative advantage exercise (Section 4)

Table A2.1. Comparative advantage analysis for Better Diets and Nutrition

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>1 Consumer-oriented food system solutions for SHD</b> —</p> <p>Tested food system solutions tackling consumer-oriented con—straints to sustain—able healthy diets</p>	<p>Subject matter experts and experienced evaluators (human capital) and long-term collaborations with in-country stakeholders and partners, local presence, and a strong reputation (social capital)</p>	<p><b>Incentives:</b> Generating IPGs, reputation, relations with policymakers; maintain relations with donors; research tied to outcomes</p> <p><b>Human capital:</b> Expertise in nutrition, political economy, economics, gender analysis, evaluations of complex programs, quantitative and qualitative approaches, local admin support</p> <p><b>Biophysical capital:</b> Multi-country datasets, survey equipment; local office</p> <p><b>Social capital:</b> Long-term collaboration w/in-country stakeholders and partners; local presence; strong (inter) national reputation</p>	<p><b>International universities</b> (i.e., WUR, Univ. of South Carolina) and <b>research institutes</b> (i.e., IRD, CIRAD), <b>data collection firms</b> (i.e., Laterite, MDRI), <b>national universities</b> (i.e., Hanoi Medical School), and <b>national research institutes</b> (i.e., VASS, VAAS, EPHI, NIN), (inter) national civil society (i.e., GAIN, HKI, A&amp;T, local CBOs), <b>(sub)national governments</b></p>	<p><b>International universities and research institutes</b></p> <p><b>Incentives:</b> Generating IPGs, reputation, publications, increased impact of research, long-term collaborations w/ in country stakeholders and partners; benefit from local presence</p> <p><b>Human capital:</b> Expertise in design, (dietary) data collection, complementary qualitative research, analysis; expertise in capacity building (training, material development, etc.); pool for support through young scientists; contextual knowledge on gender and social norms</p> <p><b>Biophysical capital:</b> Multi-country datasets; survey equipment</p> <p><b>Social capital:</b> Strong international reputation; large academic network; rapport with respective gov't (funding opportunities)</p> <p><b>Evaluation firms</b></p> <p><b>Incentives:</b> Profit, reputation</p> <p><b>Human capital:</b> Expertise in coordination of and data collection</p> <p><b>Social capital:</b> In-country network to get access to equipment/transport</p>	<p>For this HLO, the CA lies with CGIAR. Partnerships (1) lower burden on CGIAR staff time; (2) enhance capacity sharing; (3) ensure mixed method application; (4) ensure responsiveness to demands in FST-NAP; (5) augment the relevance of results for local settings; (5) increase local ownership; and (6) improve the timeliness of analysis and reporting.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>2 Market-oriented food system solutions for SHD</b> — Tested food system solutions leveraging market-oriented opportunities to deliver healthy foods, and improve income and employment of women and youth, in particular</p>	<p>Expertise in research methodologies for testing market system solutions for SHD, impact assessment and generating IPGs.</p> <p>Strong working relationship with stakeholders including national (sub) governments, international and national research organizations, and private sector</p>	<p><b>Incentives:</b> Generating IPGs, produce publication and knowledge sharing, research impact, long term impact on diets and incomes in countries of program implementation, maintain relations with policy makers, donors, local and international partners</p> <p><b>Human capital:</b> Expertise in value chains (including attention to gender and youth), food environment, nutrition, private-sector engagement, management and implementation of large and complex food system program, managing partner relations, experiments and surveys design and implementation, quantitative and qualitative data management and analysis,</p> <p><b>Biophysical capital:</b> Local offices, survey tools and equipment, baseline and impact data sets from several countries</p> <p><b>Social capital:</b> Existing strong working relationship with stakeholders — national (sub) governments, international and national research organizations, private sector</p>	<p><b>International universities</b> (MSU, WUR, MIT), <b>national universities</b> (University of Makerere, Uganda; University of Jos, Nigeria), <b>national organizations</b> (Uganda Dairy Development Authority), <b>(sub)national governments and regulatory authorities, national research organizations</b> (Nigerian Stored Products Research Institute), <b>private sector</b> (ColdHubs, WeGrow, EzyAgric, transporters, wholesalers), <b>media outlets</b> (Daily Nation, Kenya; Shamba Shape-up; Farm Radio International), <b>data collection and evaluation firms</b> (Bunkasa Agritech, ECONS and Pathways Consulting)</p>	<p><b>International universities and research institutes</b></p> <p><b>Incentives:</b> Generating IPGs, produce publication and knowledge sharing, research impact, capacity development of students, development of tools, long term collaboration with local stakeholders</p> <p><b>Human capital:</b> Expertise in value chains, nutrition, capacity building (training, material and tools development, etc.)</p> <p><b>Social capital:</b> Existing working relationship with local stakeholders</p> <p><b>Private sector</b></p> <p><b>Incentives:</b> Profit, reputation</p> <p><b>Human capital:</b> Expertise in implementing value chain and financing innovations</p> <p><b>Biophysical capital:</b> Local offices, equipment</p> <p><b>Social capital:</b> Collaboration with local and international research organizations, local farmers and other value chain actors</p>	<p>CGIAR has a strong CA in this area, but it would need to work with partners in co-designing and testing / evaluating the solutions. Important partners include local and international universities who would play a role in co-designing the solutions, conducting research and building capacity of young scientists and students on this topic; private sector and national organizations would be key in the actual testing of the solutions, and (sub) national government bodies who would collaborate in both co-design and testing of the solutions.</p> <p>Working with partners in delivering this HLO would help in: capacity building, knowledge sharing, ensuring uptake and sustainability of the tested solutions through private sector and local partners, and increasing local ownership of the tested solutions.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>3 End-to-end food system solutions for nutrient-rich perishable foods</b> — Tested end-to-end food system solutions addressing the desirability, affordability, accessibility, availability, and policy environment for fruits and vegetables, aquatic and animal-source foods</p>	<p>Subject matter experts and experienced evaluators (human capital) and long-term collaborations with in-country stakeholders and partners, local presence, and a strong reputation (social capital)</p>	<p><b>Incentives:</b> Contributing to positive program and policy change, Generating IPGs, support from donors and other stakeholders to iterate on solutions and evolve evidence-based solutions, reputation, relationships with program/innovation implementers, policymakers and donors, increased knowledge from working across sectors and with different stakeholders.</p> <p><b>Human capital:</b> Expertise in diets, nutrition, food environments, economics, agronomy, food systems, gender, policy, evaluations of complex programs, quantitative and qualitative approaches, in-country scientists and administrative support.</p> <p><b>Biophysical capital:</b> Multi-country datasets, survey equipment, offices in key geographies, in partnership with World Veg gene banks and agriculture land and labs for testing innovations in Benin and Tanzania</p> <p><b>Social capital:</b> Deep collaboration with scientists and other stakeholders with expertise across all relevant sectors for co-designing and testing end-to-end solutions. Country coordinators who are able to regularly interact with a range of stakeholders and help bring the solutions together in country. Local presence; strong (inter) national reputation.</p>	<p><b>International universities</b> (WUR, UC Davis, Cornell) and <b>research Institutes</b> (World Veg), data collection firms (EDI, Kandy Consulting), <b>national universities</b> (Sokoine University of Agriculture) and <b>national research institutes</b> (NMRI), <b>NGOs</b> (GAIN, HKI), <b>IOs</b> (FAO, WFP), <b>(sub) national governments</b></p>	<p><b>Incentives:</b> Collaborations w/ in country stakeholders and partners; benefit from local presence; generating IPGs, reputation, publications</p> <p><b>Human capital:</b> Expertise in program/innovation design, data collection, expertise in capacity building, pool for support through young scientists; contextual knowledge, deep relationship with in-country stakeholders.</p> <p><b>Biophysical capital:</b> Offices, survey equipment, datasets</p> <p><b>Social capital:</b> Strong (inter) national reputation; networks in country; rapport with respective government agencies and donors which can provide different types of funding and other opportunities.</p>	<p>The CGIAR has a strong CA in this area given the wide range of expertise of its scientists in the fields necessary for co-designing and implementing end-to-end solutions. Additionally, CGIAR scientists have experience working collaboratively across sectors and with a range of stakeholders in key geographies. Through the Initiatives we developed well-functioning partnerships, with key partners such as World Veg. While the CGIAR needs to partner to deliver on this HLO, the groundwork and partnerships are in place in key geographies. This gives a clear CA over other teams.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
4 Solutions for integrating bio-fortified and health-enhanced staples into food systems	<p><b>Incentives:</b> Expertise committed to the creation of global public goods and knowledge dissemination, with research institutions publishing</p> <p><b>Social capital:</b> Strong relations with government entities and other potential collaborators</p>	<p><b>Human capital:</b> Expertise in nutrition with strong commitment to working in multidisciplinary teams (economists, breeders, agronomists, food technologists and scientists available within and outside of CGIAR). Local administrative support and strong capacity on impact assessment</p> <p><b>Social capital:</b> Presence in target countries, with local partnerships established; Strong history of collaborating with universities engaged in nutrition research.</p> <p><b>Physical capital:</b> Regional labs for nutrition composition analysis; within country offices; survey tools</p>	<p><b>Advanced research universities</b> with capacity to conduct efficacy and effectiveness trials including: <b>American</b> (Cornell U, U of Wisconsin at Madison, Hopkins U, U of Oklahoma, UC Davis) and <b>European</b> (ETH Zurich, Max Planck Institute, Hohenheim U, East Anglia U, Central Lancashire U, Institute of Agricultural Biology and Biotechnology/ Milan, Greenwich U) and <b>local</b> (Aga Kahn U/Pakistan, A*Star) with nutrition expertise in SSA, South Asia, and Latin America; <b>government health and agricultural services;</b> <b>international and local NGOs</b> for value chain implementation (HarvestPlus Solutions); <b>private-sector</b> agro-processors and seed companies; <b>evaluation firms;</b> <b>civil society organizations</b></p>	<p><b>International universities and research institutes</b></p> <p><b>Human capital:</b> Expertise, field equipment and laboratory facilities for undertaking complex nutrition and health research. Source of supervised graduate students to implement research protocols and write-up findings</p> <p><b>Social capital:</b> Local universities have existing working relationship with local stakeholders</p> <p><b>Private sector</b></p> <p><b>Incentives:</b> Profit, reputation</p> <p><b>Human capital:</b> Expertise in implementing value chain and financing innovations</p> <p><b>Biophysical capital:</b> Local offices, equipment</p> <p><b>Social capital:</b> Collaboration with local and international research organizations, local farmers and other value chain actors</p>	<p>CGIAR has a strong CA in the field and product development components, but it would need to work with partners in co-designing and evaluating the biochemical indicators of nutrition and health Interventions. Important partners include local and international universities who would play a role in co-designing the solutions, conducting research and building capacity of young scientists and students on this topic; private sector and national organizations would be key in the actual testing of processed product solutions, and (sub) national government bodies who would be playing a lead role in providing the enabling environment</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>5 Multisectoral solutions for SHD and nutrition</b> — Tested and adapted multisectoral solutions to deliver equitable impacts on diets and nutrition outcomes by addressing the accessibility, affordability, and desirability of sustainable healthy diets</p>	<p>Innovation in program design that integrates multisectoral efforts to address equity, affordability and impact on nutrition (capabilities in diverse sectors, ability to design and deliver interventions); Full range of impact evaluation and mixed methods implementation research skills and topical sectoral knowledge. Finally, adequate knowledge of policies, programs and financing of multisectoral programs.</p>	<p><b>Incentives:</b> Contributing to positive program and policy change around impacts on nutrition outcomes and equity, Generating IPGs, support from donors and other stakeholders to iterate on solutions and evolve evidence-based solutions, reputation, relationships with program/innovation implementers, policymakers and donors, increased knowledge from working across sectors and with different stakeholders.</p> <p><b>Human capital:</b> Expertise in diets, nutrition, economics, school meal programs; safety net programs; water/energy issues; food systems, gender, policy, evaluations of complex programs, quantitative and qualitative approaches, in-country scientists and administrative support.</p> <p><b>Biophysical capital:</b> Multi-country datasets, survey equipment, offices in key geographies</p> <p><b>Social capital:</b> Relationships with national governments; international agencies; non-governmental organizations designing multisectoral programs for nutrition</p>	<p><b>National governments</b> (e.g., different ministries in the governments of Ethiopia, India, Nigeria, Sri Lanka, Philippines, Bangladesh), <b>national or international NGOs:</b> (BRAC, PRADAN, HKI, FHI360, Nutrition International), <b>international agencies</b> (WFP, UNICEF, World Bank, FAO), <b>national research institutes/universities</b> (NIN, ICDDR,B, AKU, EPHI, ACIPH), <b>international research institutes/universities</b> (Cornell U; LSHTM; U of South Carolina)</p>	<p><b>Incentives:</b> Partner incentives include policy and political intent to tackle underlying challenges to deliver nutrition outcomes</p> <p><b>Human capital:</b> Expertise in program/innovation design, pool for support through young scientists; contextual knowledge</p> <p><b>Biophysical capital:</b> Offices, survey equipment</p> <p><b>Social capital:</b> National or international program delivery or policy reputation; networks in country; rapport with respective government agencies</p>	<p>The CGIAR has a strong CA in this area given the wide range of expertise of its scientists in the fields necessary for co-designing, implementing and testing multisectoral solutions to tackle nutrition equity, affordability of healthy diets and nutrition outcomes at scale. CGIAR scientists bring experience in research on all the sectoral programs needed to deliver these HLO and nutrition. CGIAR scientists also have experience working collaboratively across sectors and with a range of stakeholders in key geographies. Through decades of research under the CRPs and funded bilaterally, the CGIAR has developed well-functioning partnerships with key partners, including national governments and international agencies. Many solutions to be co-designed and tested are delivered by implementation partners and evaluated by CGIAR and national researchers. Thus, while the CGIAR needs to partner to deliver on this HLO, the groundwork and partnerships are in place in key geographies and key sectors, and many have been in place for over a decade. This provides strong grounding to accelerate efforts given the mix of skills and the strength of partnerships.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>6 Gender transformative solutions for SHD, nutrition, income and employment</b></p> <p>— Tested and adapted gender-transformative solutions to support equitable diet, nutrition and income impacts across the food system</p>	<p>Subject matter experts and experienced evaluators (human capital) and long-term collaborations with in-country stakeholders and partners, local presence, and a strong reputation (social capital)</p>	<p><b>Incentives:</b> Generating IPGs, produce publication and knowledge sharing, research impact, tested suite of approaches to empower women and improve gender equality across the food system in countries of implementation, maintain relations with policymakers, donors, local and international partners</p> <p><b>Human capital:</b> Expertise in designing and evaluating interventions to improve women's empowerment and gender equality (WEGE) in food systems, including metrics to measure WEGE in AFS, engagement with civil society organizations</p> <p><b>Biophysical capital:</b> Local offices, survey tools and equipment, sex-disaggregated baseline and impact data sets from several countries</p> <p><b>Social capital:</b> Existing strong working relationship with stakeholders- (sub) national governments, international and national research organizations, private sector</p>	<p>Local and international NGOs, international universities and research institutes, national universities and research institutes, NARES</p>	<p>For local and international NGOs = social capital</p> <p><b>International universities and research organizations</b></p> <p><b>Incentives:</b> Generating IPGs, reputation, publications, increased impact of research, long-term collaborations w/ in country stakeholders and partners; benefit from local presence</p> <p><b>Human capital:</b> Expertise</p> <p><b>NGOs or NARES</b></p> <p><b>Human capital:</b> experience, in-country expertise</p> <p><b>Social capital:</b> Trusted relationships</p>	<p>CGIAR has strong CA in this area given the wide range of expertise of its scientists in the fields necessary for co-designing, implementing and testing gender-transformative solutions. CGIAR also has experience working collaboratively across sectors and with a range of stakeholders in key geographies. Through decades of research under the CRPs and bilaterally funded projects, CGIAR has well-functioning partnerships with key partners, including national governments and NGOs. Many solutions to be co-designed and tested are delivered by implementation partners. In some cases, NGOs or NARES may have a SCA that enables them to bring actors together around the evidence base and justify investments in gender transformative solutions.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>7 Climate-sensitive solutions for SHD and nutrition</b> — Tested and adapted climate-resilient and environmentally sustainable demand-side innovations to support equitable diet, nutrition and climate impacts across the food system</p>	<p>Subject matter experts and experienced evaluators (human capital) and long-term collaborations with in-country stakeholders and partners, local presence, and a strong reputation (social capital)</p>	<p><b>Incentives:</b> Generating IPGs, reputation, relations with policymakers; maintain relations with donors; research tied to outcomes</p> <p><b>Human capital:</b> Expertise in nutrition, political economy, economics, evaluations of complex programs, quantitative and qualitative approaches, local admin support</p> <p><b>Biophysical capital:</b> Multi-country datasets, survey equipment; local office; laboratories for determining micronutrient content</p> <p><b>Social capital:</b> Long-term collaborations w/in-country stakeholders and partners; local presence; strong (inter) national reputation</p>	<p><b>International universities</b> (Cornell U, Columbia U, MSU, MIT) and <b>research institutes</b> (Potsdam Institute for Climate), <b>national universities</b> (U of Jos, Nigeria), <b>global organizations</b> (COP28 TCC, ACF), <b>(inter)national civil society</b> (WWF), <b>national research institutes</b> (VASS, VAAS, EPHI, NIN), <b>private sector</b> (buyers, distributors, retailers, ColdHubs, EzyAgric), <b>(sub)national governments</b></p>	<p><b>International universities and research organizations</b></p> <p><b>Incentives:</b> Generating IPGs, reputation, publications, increased impact of research, long-term collaborations w/ in country stakeholders and partners; benefit from local presence</p> <p><b>Human capital:</b> Expertise in climate change modelling applied to food systems at a global scale, pool of young scientists</p> <p><b>Biophysical capital:</b> Multi-country datasets, survey equipment</p> <p><b>Social capital:</b> Strong international reputation</p> <p>Global and regional organizations</p> <p><b>Incentives:</b> Implement the COP28 UAE Declaration on Agriculture, Food and Climate; align country agendas on NDCs, NAPs, NBSAPs</p> <p><b>Human capital:</b> Country constellations in 16 countries</p> <p><b>Social capital:</b> Endorsed by 160 countries</p>	<p>The CGIAR CA for climate-sensitive solutions is in other Programs (i.e., Climate Action), and international global organizations, so partnership with these is essential. The BDN Science Program's CGIAR CA is to ensure climate adaptation and mitigation does not harm SHD and nutrition. Specialized research to be done in partnership with (inter)national universities/ research institutes with expertise on this. The BDN Science Program CA assesses the environmental sustainability of diets, and optimizes diets for health, environmental sustainability and costs. This is the CGIAR CA in partnership with international universities/ research institutes.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>8 Capacity sharing for FST solutions supporting SHD</b> — Capacity sharing activities for designing and implementing solutions in support of food systems transformation that delivers sustain-able healthy diets and nutrition impacts at national and subnational levels</p>	<p><b>Human capital:</b> Expertise to develop capacity sharing events for different contexts and stakeholders; strong familiarity with challenges faced in the contexts of interest.</p> <p><b>Social capital:</b> strong relations and trust with national/ regional stakeholder beneficiaries for joint honorship.</p> <p><b>Biophysical capital:</b> Centers where the capacity sharing can be done conducive to effective capacity sharing</p>	<p><b>Incentives:</b> Generating IPGs, reputation, relations with policy makers; maintain relations with donors; research tied to outcomes; capacity sharing mandate</p> <p><b>Human capital:</b> Expertise in applied food system approaches, methods &amp; tools; translation of concepts to action; consolidation of applied learning networks; local admin support</p> <p><b>Biophysical capital:</b> Multi-country experiences bridging between conceptual and applied approaches to food systems; local office</p> <p><b>Social capital:</b> Long-term collaborations w/in-country stakeholders and partners; local presence; strong (inter) national reputation</p>	<p><b>International universities and research Institutes</b> (WUR, MSU), <b>local research institutes</b> (VAAS, EPHI, NIN) and <b>universities, extension systems</b> (agriculture, health, nutrition), <b>(sub) national governments</b></p>	<p><b>International universities and research institutes</b></p> <p><b>Incentives:</b> Generating IPGs, reputation, publications, training, teaching and curriculum development mandate</p> <p><b>Human capital:</b> Expertise in conceptualizing food system approaches and multistakeholder networks; design and application of research approaches and tools; academic curriculum and course design, implementation, and evaluation</p> <p><b>Biophysical capital:</b> Multi-country experience and data sets; existing F2F and hybrid/online food system transformation capacity sharing programs; existing formal programs for internationally accredited academic formation</p> <p><b>Social capital:</b> Strong international reputation</p> <p><b>National universities and research institutes</b></p> <p><b>Incentives:</b> Established research expertise, country ownership of results; funding for research; respond to policy makers; teaching mandate</p> <p><b>Human capital:</b> Local knowledge and insights; expertise in contextualizing global concepts and approaches to meet needs; academic curriculum development and course design</p> <p><b>Biophysical capital:</b> existing formal programs for nationally accredited academic formation</p> <p><b>Social capital:</b> Strong national reputation; in-country network; rapport with (sub)national gov't</p>	<p>This is joint CA of CGIAR, (inter)national universities/ research institutes, and (sub) national governments. CGIAR and international universities/ research Institutes provide technical and process expertise, partnership with national universities/ research institutes and (sub) national governments ensure adaptation to the local context, prevent overlap with other organizations, and provide south-south support) and (sub)national cascading. Other (Inter) national organizations may provide capacity sharing; close communication will provide overlap and might provide opportunities for partnership.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>9 Transformative capacity sharing for diets and nutrition leader-ship</b> — Capacity sharing activities that support regional and global transformative leadership that delivers sustain-able healthy diets and nutrition impacts</p>	<p><b>Human capital:</b> A functional understanding of the need for leadership development and leadership practices and the importance of this to catalyze change.</p> <p><b>Social capital:</b> Trust relations that promote openness to the need for transformative leadership attributes across stakeholder groups</p>	<p><b>Incentives:</b> Generating IPGs, reputation, relations with policy makers; maintain relations with donors; research tied to outcomes; capacity sharing mandate that can be extended to leadership development.</p> <p><b>Human capital:</b> Expertise in applied food system approaches, methods &amp; tools; translation of concepts to action; consolidation of applied learning networks; established thought leadership in key topics to which to apply leadership principles</p> <p><b>Biophysical capital:</b> Multi-country experiences bridging between conceptual and applied approaches to food systems that can form the basis to apply leadership development principles</p> <p><b>Social capital:</b> Association with nutrition leadership programmes and processes in some countries and regions. Long-term collaborations w/ in-country stakeholders and partners; local presence; strong (inter) national reputation</p>	<p><b>International civil society</b> (SUN, ANH), <b>universities</b> (ANLP), <b>nutrition leadership networks</b> at the country level (e.g., in Nigeria and Ethiopia)</p>	<p><b>African Nutrition Leadership Programme (ANLP); UNFSS Hub; North west University</b></p> <p><b>Incentives:</b> Build and strengthen the capacity of its network members; address low organizational capacity; connect people and organizations working on agriculture, Diets and nutrition related topics. Ability to build on earlier efforts to provide leadership development for CAADP and SUN Teams in Africa. ANLP has run nutrition leadership development programs and country and regional levels since 2003 with a strong alumni network across the globe.</p> <p><b>Human capital:</b> Strong global and regional alumni that can serve as resource persons, including three members of the program's writing teams. Global coordination; training and learning exchange organization; communications; global and national network facilitation</p> <p><b>Biophysical capital:</b> Multi-country networks</p> <p><b>Social capital:</b> Established global learning and exchange spaces; strong international reputation</p>	<p>ANLP is very strong on development of nutrition leadership development content that can be applied to food systems transformation leveraging CGIAR comparative advantage on food and agriculture. A complementary partnership is therefore possible as previously experienced for the Transform Nutrition West Africa project.</p>

HLO	Needed SCA required to deliver the HLO	CGIAR's SCA in delivering the HLO	Potential partner types	Partners' SCA in delivering the high-level output	Analysis of trade-offs between CGIAR and potential partners' SCA and indication of where the CA lies
<p><b>10 SHD and nutrition policy and financing options</b> — Program guidance and policy and financing options that address multiple constraints (availability, access–sibility, affordability, and desirability) to sustainable healthy diets for women and youth, in particular</p>	<p><b>Human capital:</b> Strong expertise in linking gaps in diet quality and nutrition outcomes to financial implications for national/ regional governments to incentivize the need for financing; expertise to explore options of financing options for different settings.</p> <p><b>Social capital:</b> Trust relations to work effectively with government and other relevant partners to openly explore options of financing mechanism</p>	<p><b>Human capital:</b> Existing expertise on assessing financing options under diverse settings. Existing diets and nutrition expertise to link the finance elements to sustainable healthy diets and nutrition.</p> <p><b>Social capital:</b> Existing trust relations with national/ regional government and other stakeholders positioning CGIAR for influence.</p> <p><b>Geophysical capital:</b> Existing policy instruments at country and regional level that CGIAR has contributed to developing or has positively influenced.</p>	<p><b>International civil society (GAIN), international organizations (UNFSS Coord. Hub), funders/ development banks, global and regional organizations (AU, UN), private sector (WeGrow, EzyAgric), partner national governments</b> implementing food systems transformation pathways</p>	<p>Human capital: some partners like GAIN have a strong presence at country level. The UNFSS Coordination hub does not have a presence at country levels, but CGIAR strong presence at country level would be an asset and complementary,</p>	<p>CGIAR has a strong presence in many countries with strong influence relations. Other partners like GAIN have stronger relations with some relevant private sector entities that may require careful attention to manage trade-offs.</p>
<p><b>11 SHD and nutrition policy engagement and support</b> — Convening and evidence support to national-level policy communities developing food systems transformation toward SHD, and nutrition strategies and actions</p>	<p>Strong nutrition capability and knowledge; experience and knowledge with evidence translation and facilitation; experience and research-based experience in development of transformative nutrition leadership and capacity sharing partnerships</p>	<p><b>Incentives:</b> Generating IPGs, reputation, relations with policymakers; maintain relations with donors; research tied to outcomes; capacity sharing mandate</p> <p><b>Human capital:</b> Expertise in applied food system approaches, methods &amp; tools; translation of concepts to action; consolidation of applied learning networks; established thought leadership in key topics</p> <p><b>Biophysical capital:</b> Multi-country experiences bridging conceptual and applied approaches to food systems</p> <p><b>Social capital:</b> Long-term collaborations w/in-country stakeholders and partners; local presence; strong (inter) national reputation</p>	<p><b>International universities (WUR); (sub)national government, national research institutes (VASS, VAAS, EPHI, NIN; ICDDR,B, IIDS), national universities, (inter) national civil society (GAIN), global and regional organizations (UN Food Systems Coordination Hub)</b></p>	<p><b>Global and regional organizations (UN Food Systems Coordination Hub)</b></p> <p><b>Incentives:</b> Serve countries through systemic, country-driven, customized support for SDGs-based food systems transformations towards the acceleration of the 2030 Agenda; catalyse and connect the UN system</p> <p><b>Human capital:</b> Team comprised of secondments from UN system entities</p> <p><b>Biophysical capital:</b> Access to UN infrastructure and offices</p> <p><b>Social capital:</b> Connected with the broader ecosystem of actors for sustainable food systems, including Coalitions and other initiatives as well as the science ecosystem</p>	<p>This is joint CA of CGIAR and (sub)national gov'ts to ensure relevance and embedding of provided evidence to ensure FST toward SHD. Through (sub) national gov't, engagement with (inter)national universities to provide learning framework and documentation of the engagement process and outcomes. Through (sub)gov't partnership, collaboration will be coordinated with international organization working in-country.</p> <p>CGIAR has strong comparative advantage to support the achievement of this HLO in key countries where strong CGIAR in-country presence has now existed over the long term on diets, nutrition, food systems and related sectors. This exists in specific contexts nationally — India, Bangladesh, Ethiopia, Nigeria, Senegal and in other contexts regionally (South Asia, East Asia, West Africa and East Africa)</p>

**Note:** AASF=animal and aquatic sustainable foods, BF=biofortification, CA=comparative advantage, FST=food systems transformation, HLO=high-level outputs, SCA=sources of comparative advantage, SHD=sustainable healthy diets.

## Appendix 3. Program-level TOC table (Section 5)

**Table A3.1.** Theory of change for the Better Diets and Nutrition Program

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
HLO 1	<p><b>Consumer-oriented food system solutions for SHD</b> — Tested food system solutions tackling consumer-oriented constraints to sustainable healthy diets</p>	1	<p>Governments, universities, NGOs, MSMEs, WUR, Policy Innovations Program, Sustainable Animal and Aquatic Foods Program</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data collection and analysis, reporting, and dissemination; policy incidence &amp; uptake, scaling of solutions; foresight modelling; food safety interventions; food waste reductions</p>	Not required	Not required
HLO 2	<p><b>Market-oriented food system solutions for SHD</b> — Tested food system solutions leveraging market-oriented opportunities to deliver healthy foods, and improve income and employment of women and youth, in particular</p>	2	<p>Governments, NGOs, private sector firms and, associations, Policy Innovation Program, Sustainable Animal and Aquatic Foods Program</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; conduct research and build capacity of young scientists and students; data analysis; policy incidence &amp; uptake scaling of solutions; sustainable production practices; global trade modelling exercises; food safety interventions; food loss and waste reduction</p>	Not required	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
HLO 3	<p><b>End-to-end food system solutions for PNR foods to support SHD</b> — Tested and adapted end-to-end food system solutions addressing the desirability, affordability, accessibility, availability and policy constraints for PNR.</p>	3	<p>NARES, multistakeholder platforms, universities, community-based organizations, governments, World Vegetable Center, Breeding for Tomorrow and Genebanks Program, Sustainable Animal and Aquatic Foods Program, Sustainable Farming Program</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence &amp; uptake, scaling of solutions; vegetable seed systems support and breeding; sustainable vegetable (and diversified farming systems) production practices; post-harvest research; food safety; demand-oriented breeding for animal and aquatic foods; sustainable animal and aquatic foods production practices; food safety; food loss and waste reduction</p>	Not required	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
HLO 4	<p><b>Solutions for integrating biofortified and health-enhanced staples into food systems</b> — Tested new and existing biofortified and health-enhancing staples and derived processed products using biofortified ingredients through inclusive value chains that ensure reliable supply of affordable micronutrients, improve livelihoods and resilience for farmers, and diet quality for consumers</p>	4	<p>NARES, multistakeholder platforms, universities, community-based organizations, governments, private-sector associations, Breeding for Tomorrow and Genebanks Program, Sustainable Farming Program</p> <p><b>Roles:</b> Co-design and joint test solutions; co-design and evaluate the biochemical indicators of nutrition and health interventions; conduct research and build capacity of young scientists and students; test processed product solutions; provide enabling environments; data analysis; policy incidence &amp; uptake, scaling of solutions; demand oriented breeding for biofortified staples; sustainable staple production practices</p>	Not required	Not required
HLO 5	<p><b>Multisectoral solutions for SHD and nutrition</b> — Tested and adapted multisectoral solutions to deliver equitable impacts on diets and nutrition outcomes by addressing the accessibility, affordability, and desirability of sustainable healthy diets</p>	5	<p>NGOs, community-based organizations, governments, universities, Food Frontiers and Security Program</p> <p><b>Roles:</b> Co-design and joint test solutions; data analysis; policy incidence &amp; uptake, scaling of solutions; social safety nets in fragile states</p>	Not required	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
HLO 6	<p><b>Gender transformative solutions for SHD, nutrition, income and employment</b> — Tested and adapted gender-transformative solutions to support equitable diet, nutrition and income impacts across the food system</p>	1, 2, 3, 4, 5	<p>NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence &amp; uptake scaling of solutions</p>	Not required	Not required
HLO 7	<p><b>Climate-sensitive solutions for SHD and nutrition</b> — Tested and adapted climate-resilient and environmentally sustainable demand-side innovations to support equitable diet, nutrition and climate impacts across the food system</p>	1, 2, 3, 4, 5	<p>NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments, Climate Action Program</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; policy incidence analysis, policy uptake, and scaling of solutions; specialized research to be done in partnership with (inter)national universities/ research institutes with expertise in this</p>	Not required	Not required
HLO 8	<p><b>Capacity sharing for FST solutions supporting SHD</b> — Capacity sharing activities for designing and implementing solutions in support of food systems transformation that delivers sustainable healthy diets and nutrition impacts at national and subnational levels</p>	1, 3, 4, 5, 6	<p>Universities, governments, NGOs, community-based organizations, multistakeholder platforms, regional organizations</p> <p><b>Roles:</b> Provide technical and process expertise; develop training materials; co-design, implement and joint test solutions; policy incidence analysis, policy uptake, and scaling of solutions; co-convene events</p>	Not required	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
HLO 9	<b>Transformative capacity sharing for diets and nutrition leadership</b> — Capacity sharing activities that support regional and global transformative leadership that delivers sustainable healthy diets and nutrition impacts	1, 3, 4, 5, 6	Country, regional and global organizations, universities, NGOs, multistakeholder platforms, governments, Capacity Sharing Accelerator  <b>Roles:</b> Develop training materials: co-design: co-convene; implement and joint test solutions; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required
HLO 10	<b>SHD and nutrition policy and financing options</b> — Program guidance and policy and financing options that address multiple constraints (availability, accessibility, affordability, and desirability) to sustainable healthy diets for women and youth, in particular	1, 2, 3, 4, 5, 6,	Governments, funders, global and regional organizations  <b>Roles:</b> Co-design, implement, and joint test solutions; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required
HLO 11	<b>SHD and nutrition policy engagement and support</b> — Convening and evidence support to national-level policy communities developing food systems transformation toward SHD, and nutrition strategies and actions	1, 2, 3, 4, 5, 6	Governments, funders, global and regional organizations  <b>Roles:</b> Co-design, co-convene, implement and joint test solutions; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 1.1, 2.1, 3.1	Government actors incorporate policy and programming innovations to improve the availability, accessibility, affordability and desirability of SHDs	1, 2, 3, 4, 5, 6	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling of solutions	<i>(i) that the three types of actors can identify key policies, business practices and multisectoral approaches relevant to their specific context to test and evaluate; (ii) that effective incentives for the adoption of effective policies, business practices, and multisectoral approaches can be identified and leveraged to drive uptake; and (iii) that trade-offs and conflicts among actors can be managed to generate broad-based coalitions for positive FST</i>	Not required
I-OC 1.2	Market system actors incorporate practices that increase the efficiency and quality of SHD available while enhancing employment for women	1, 2, 3, 4, 5, 6	Private sector, private sector associations, NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling of solutions	<i>(i) that the three types of actors can identify key policies, business practices and multisectoral approaches relevant to their specific context to test and evaluate; (ii) that effective incentives for the adoption of effective policies, business practices, and multisectoral approaches can be identified and leveraged to drive uptake; and (iii) that trade-offs and conflicts among actors can be managed to generate broad-based coalitions for positive FST</i>	Not required
I-OC 1.3, 2.3, 3.2, 4.1	Policy communities articulate complementary multisector approaches in synergy with SHDs that support improved nutrition and health status	1, 2, 3, 4, 5, 6	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Community facilitation, co-convening, shared learning; policy incidence analysis, policy uptake, and scaling of solutions	<i>(i) that the three types of actors can identify key policies, business practices and multisectoral approaches relevant to their specific context to test and evaluate; (ii) that effective incentives for the adoption of effective policies, business practices, and multisectoral approaches can be identified and leveraged to drive uptake; and (iii) that trade-offs and conflicts among actors can be managed to generate broad-based coalitions for positive FST</i>	Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 1.4 & 2.4	Academic and research organizations learn, adapt, and synergize different approaches to work towards common food system objectives	1, 3, 4, 5, 6	Universities, governments, NGOs, community-based organizations, multistakeholder platforms  <b>Roles:</b> Community facilitation, shared learning & consolidation of coalitions for FST	<i>(i) that capacity sharing supports the emergence of a common language and understanding of food systems, diets and nutrition across diverse actors; (ii) that this understanding facilitates meaningful dialog to identify synergies, manage trade-offs and promote shared learning; and (iii) that this contributes to coalitions in support of positive FST at the national and global scale</i>	Not required
I-OC 1.5, 2.5, 3.3, & 4.2	A South-South network of food system thinkers and leaders from across sectors facilitate knowledge exchange and technical expertise on expertise on SHD in FST	1, 3, 4, 5, 6	Governments, NGOs, community-based organizations, multistakeholder platforms, universities, global and regional organizations  <b>Roles:</b> Community facilitation, shared learning & participation in global debates	<i>(i) that capacity sharing supports the emergence of a common language and understanding of food systems, diets and nutrition across diverse actors; (ii) that this understanding facilitates meaningful dialog to identify synergies, manage trade-offs and promote shared learning; and (iii) that this contributes to coalitions in support of positive FST at the national and global scale</i>	Not required
I-OC 3.4	National and subnational food systems actors build understanding of and collaboration on governance issues in the food system that pose risks to nutrition impacts	1, 3, 6	Universities, governments, NGOs, community-based organizations, multistakeholder platforms  <b>Roles:</b> Community facilitation, shared learning & participation in global debates		Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 3.5	National and subnational policy actors use tools that assess the food systems transformation process to inform decision-making	1, 2, 3, 4, 5, 6	Governments, universities, private-sector associations, NGOs, community-based organizations  <b>Roles:</b> Community facilitation, co-convening, shared learning, policy incidence analysis, policy uptake, and scaling of solutions	<i>(i) that the actors can identify synergies, manage trade-offs and develop articulated approaches; (ii) that political economy barriers and power dynamics can be positively influenced to support a change agenda; and (iii) that rich national processes can serve as inspiration for international agendas that include diets and nutrition in global discussions.</i>	Not required
I-OC 4.3	International and regional organizations agree to build a shared food systems agenda that maximize shared benefits and minimize risks to nutrition impacts	1, 2, 3, 4, 5, 6	Governments, NGOs, multistakeholder platforms, global and regional organizations  <b>Roles:</b> Community facilitation, shared learning & participation in global debates	<i>(i) that the actors can identify synergies, manage trade-offs and develop articulated approaches; (ii) that political economy barriers and power dynamics can be positively influenced to support a change agenda; and (iii) that rich national processes can serve as inspiration for international agendas that include diets and nutrition in global discussions.</i>	Not required
I-OC 1.6, 2.6, 3.6	Food systems actors learn, adapt, and synergize different approaches that support the implementation of effective public and market system solutions for SHD	1, 2, 3, 4, 5, 6	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Community facilitation, co-convening, shared learning, policy incidence analysis, policy uptake, and scaling of solutions		Not required
I-OC 3.7	National and subnational policy actors align their nutrition and food systems policies towards meeting nutrition impacts	1, 2, 3, 5, 6	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Community facilitation, shared learning, policy incidence analysis, policy uptake, and scaling of solutions		Not required
I-OC 4.4	International and regional organizations actively position diets and nutrition in global discussions about alignment between climate, agriculture and biodiversity agendas.	1, 2, 3, 4, 5, 6	Governments, NGOs, multistakeholder platforms, global and regional organizations  <b>Roles:</b> Community facilitation, shared learning & participation in global debates, co-convening		Not required

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
2030-OC 1	Market systems actors provide safe, affordable and attractive SHDs while ensuring high quality employment for women across 5 countries	1, 2, 3, 4	Governments, NGOs, private sector associations, community-based organizations, NARES, multistakeholder platforms, universities  <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling of solutions	<i>This indicator and target discussion aligns with FST-NAPs and is set with national stakeholders during the Inception Phase to adequately reflect country context and identify how can Better Diets and Nutrition help move faster on achieving these targets</i>	Availability of fruits Availability of vegetables  Cost of diets (nutrient adequate, healthy) in USD
2030-OC 2	Consumers increase demand for and consumption of SHDs based on BCC, improved access and affordability across 5 countries	1, 2, 3, 4, 5	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling of solutions	<i>This indicator and target discussion aligns with FST-NAPs and is set with national stakeholders during the Inception Phase to adequately reflect country context and identify how can Better Diets and Nutrition help move faster on achieving these targets</i>  <i>If we see increases this means both demand for SHD and increased capacity for consumers to access SHD.</i>  <i>Care needs to be taken with meeting minimum amounts of foods consumed, not just consumption yes or no</i>	Increase % population that can afford nutrient/healthy diets  MDD-W
2030-OC 3	Coalitions of food system actors across 10 countries lead the effective implementation of solutions and policy frameworks that deliver accessible, available, affordable and desirable SHD while balancing environmental and social needs.	1, 3, 4, 5, 6	NGOs, community-based organizations, NARES, multistakeholder platforms, universities, governments, private-sector associations  <b>Roles:</b> Community facilitation, shared learning, co-convening, policy incidence analysis, policy uptake, and scaling of solutions	<i>The quality of the FST-NAP and the national capacity and willingness to implement what is planned is critical to measure, not the existence of the FST-NAP per se.</i>  <i>Convergence indicators that include NDCs, NBSAPs and FST-NAPs are critical at a country scale to ensure policy coherence and alignment.</i>	No indicator is available to track progress to date on FST-NAPs. Development of this would be a focus of the Program  Quality scoring of FST-NAP for Better Diets and Nutrition (scoring scale TBD)  Implementation stages (scoring scale TBD)

Theory of change element	Statement	Contributing Area(s) of Work	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
2030-OC 4	Global multilateral networks incorporate diets and nutrition in a balanced way with climate, biodiversity and agriculture in a global convergence agenda	1, 5, 6	Universities, governments, NGOs, community-based organizations, multistakeholder platforms, global and regional organizations  <b>Roles:</b> Community facilitation, shared learning & participation in global debates	<i>The inclusion of diet and nutrition concerns in global conversations requires on-going leadership from country partners and Better Diets and Nutrition.</i>  <i>Common convergence methods that include NDCs, NBSAPs and FST-NAPs are critical at a global scale to ensure policy coherence and alignment.</i>	No indicator exists. Development of this would be a focus of the Program.  Common convergence indicators including SHD

**Note:** Abbreviations used only in the table and not defined elsewhere: 2030-OC=2030 outcome, I-OC = intermediate outcome, NBSAPs=National Biodiversity Strategies and Action Plans, WUR=Wageningen University and Research.

## Appendix 4. AoW-level TOC tables (Section 6)

**Table A4.1.** Partnerships, assumptions, and 2030 outcome targets for AoW 1

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1	Suite of tested consumer-focused solutions that promote sustainable healthy diets	National and int'l academic institutions, national governments, Sustainable Animal and Aquatic Foods Program  <b>Roles:</b> Co-design, implement, and joint test solutions; conduct research and build capacity of young scientists and students; data collection and analysis, reporting and dissemination; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required
OP 1.2	Suite of vendor-focused solutions that promote the sale of nutritious foods while maintaining or increasing income and employment opportunities	National and int'l academic institutions, national governments, Sustainable Animal and Aquatic Foods  <b>Roles:</b> Co-design, implement, and joint test solutions; conduct research and build capacity of young scientists and students; data analysis; policy incidence analysis, policy uptake, and scaling of solutions; food safety interventions; food loss and waste reduction	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 2.1	Political economy analyses that identify and overcome systemic lock-ins	National and int'l academic institutions, national governments  <b>Roles:</b> Co-design, implement, and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required
OP 2.2	Ex ante trade-offs compared to define policy options	National and int'l academic institutions, national governments, Policy Innovations Program  <b>Roles:</b> Co-design, implement, and joint test solutions; foresight modelling	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 3.1	Strategic partners capable of building effective coalitions to implement FST-NAPs with a focus on SHDs	National and int'l academic institutions, national governments  <b>Roles:</b> Co-design, implement, and joint test solutions; conduct research and build capacity of young scientists and students; data analysis; policy incidence analysis, policy uptake, and scaling of solutions	Not required	Not required
I-OC 1.1 & 2.1	Government actors use evidence to inform their decisions about which consumer-oriented solutions to implement that improve the consumption of sustainable healthy diets and/or limit the consumption of unhealthy foods.	National governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Evidence is relevant and timely for government actors to use  Gov't actors perceive their institutions to have the capacity to implement the solutions.	Not required
I-OC 1.2	Government actors use evidence to inform their decisions about which MSMEs and informal actor-oriented solutions to implement that overcome constraints inhibiting the affordability and accessibility of relatively healthy foods.	National governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Evidence is relevant and timely for government actors to use  Gov't actors perceive their institutions to have the capacity to implement the solutions.	Not required
I-OC 1.3	Government actors use evidence to inform their decisions about which MSMEs and informal actor-oriented solutions to implement that maintain or increase decent employment and income opportunities, particularly among women.	National governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Evidence is relevant and timely for government actors to use  Gov't actors perceive their institutions to have the capacity to implement the solutions.	Not required
I-OC 2.2, 3.1, & 4.1	Food system actors identify pathways and build momentum for new governance mechanisms (such as the FST-NAP) that seek to align different priorities, sectors, and levels of government to credibly address the consumption of SHD alongside other challenges.	National governments, Policy Innovations Program  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	The political environment is conducive for actors to make the desired changes.  Gov't actors are empowered to influence the desired changes.  Gov't actors have the skills and capacity to influence the desired changes.	Not required
I-OC 2.3 & 4.2	Government actors promote lessons learned from promoting SHD through the lens of food systems transformation in global and national fora.	National governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Gov't actors are empowered to document, understand, and share lessons broadly.	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
2030-OC 1	Stakeholders scale tested solutions in target countries.	National governments, Scaling for Impact Program  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Stakeholders have the desire, capacity, and resources to scale tested solutions, and there are no barriers to scaling that go far beyond the control of these stakeholders.	N/A
2030-OC 2	Target countries' momentum on food systems transformation remains steadfast, with a focus on the SHD agenda in particular.	National governments  <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Governments understand the need to implement agendas that balance sustainable healthy diets with other FST priorities.	N/A
2030-OC 3	Coalitions in (and across) target countries understand how to steer the implementation of FST-NAPs toward SHD.	Food system actors (national governments, civil society, private sector, international organizations)  <b>Roles:</b> Community facilitation; shared learning; policy incidence analysis, policy uptake, and monitoring and scaling of solutions	Coalitions consolidate around a FST agenda that centers sustainable healthy diets against other priorities.	N/A
2030-OC 4	National and subnational food system actors are aware of and understand how to apply food system approaches, including tools, methods, and metrics, in research and practice.	Capacity Sharing Accelerator,  food system actors (national governments, civil society, private sector, international organizations)  <b>Roles:</b> Community facilitation, shared learning, policy incidence analysis, policy uptake, and scaling of solutions	Food system actors develop the knowledge, skills, and interest necessary to widely use food system tools, methods, and metrics at national and subnational levels.	N/A

**Note:** Abbreviations used in the table and not defined elsewhere: 2030-OC=2030 outcome, I-OC=intermediate outcome, OP=output.

**Table A4.2.** Partnerships, assumptions, and 2030 outcome targets for AoW 2

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1	Tested sets of solutions addressing food quality concerns in food supply chains and food environments	<p>National partners (including third-party certification agencies), government agencies, international research partners, Policy Innovations Programs, Digital Transformation Accelerator</p> <p><b>Roles:</b> Collaborate in designing, implementing, and testing solutions; conduct food quality, safety, and policy research; co-design and conduct research related to digital innovations</p> <p>This Program’s AoW 1, AoW 5, AoW 6,</p> <p><b>Roles:</b> Collaborate in conducting research on food environments, UPF policies, and co-design and test solutions</p> <p>Sustainable Farming and Climate Action Programs, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Share evidence that informs and helps in testing food quality and safety solutions under AoW 2, collaborate in conducting gender and youth studies, and test solutions within the market system</p>	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.2	Contextually appropriate and locally supported innovations for food safety improvement and assurance in settings characterized by high levels of informality	Government agencies and local private-sector partners, national and international research partners <b>Roles:</b> Co-develop and implement innovations and collaborate in food quality research  Sustainable Animal and Aquatic Foods Program <b>Roles:</b> Co-design and conduct research on food safety in animal and aquatic foods	Not required	Not required
OP 2.1	Tested sets of solutions for improved efficiency, reduced food loss, and intermediation in market systems for healthy foods	National implementation partners, government agencies, international research partners, the private sector <b>Roles:</b> Co-design and collaborate in testing and validating solutions on value chain efficiencies and food loss and waste, scale generated evidence, data analysis  This Program's AoW 1, AoW 3 <b>Roles:</b> Collaborate in conducting research on solutions for reducing food loss and waste in food environments  Policy Innovations Program and Digital Transformation Accelerator <b>Roles:</b> Co-design and research on policies and digital solutions for improving efficiencies in the market system	Not required	Not required
OP 2.2	Tested sets of innovations that deliver inclusive finance in market systems for healthy foods	National implementation partners (including financial services institutions, digital finance service providers, and producer organizations), government agencies, and international research partners <b>Roles:</b> Collaborate in designing and implementing solutions on finance  Digital Transformation Accelerator. <b>Roles:</b> Collaborate in finance research	Not required	Not required
OP 2.3	Tested solutions to increase incomes and quality employment opportunities for women and youth in market systems for healthy foods	National implementation partners, government agencies, international research partners, Policy Innovations Program and Digital Transformation Accelerator <b>Roles:</b> Co-design, implement, and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling of solutions; food safety research  This Program's AoW 1, AoW 3, AoW 4 <b>Roles:</b> Joint test solutions	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 3.1	Policy options to address the role of market concentration in the growing supply and consumption of UPF	National and International research partners, government agencies <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling of solutions  This Program's AoW 5, AoW 6 <b>Roles:</b> Collaborate on policy-related evidence generation	Not required	Not required
OP 3.2	Policy scenario analyses identifying options for effective domestic and food trade policy support for sustainable healthy diets	National policymakers and relevant international organizations (including FAO, World Bank), Policy Innovations Program <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling solutions	Not required	Not required
OP 3.3	Tested solutions to mitigate the impacts of climate change in market systems for healthy foods	National implementation partners, government agencies, international research partners, Policy Innovations Program and Digital Transformation Accelerator <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling solutions	Not required	Not required
I-OC 1.1	Food system suppliers and consumers use tested food quality and/or food safety standards	National implementation partners (including certification agencies), government agencies, international research partners  <b>Roles:</b> Co-design and implement solutions, collaborate in generating research evidence, facilitate policy uptake  This Program's AoW 1, AoW 3, AoW 4 <b>Roles:</b> Joint test solutions	New food quality and/or safety standards perceived by consumers to signal higher quality or safer foods and producers and value chain actors perceive the new standards are profitable to implement	Not required
I-OC 1.2	Effective systems for food safety improvement and assurance are deployed in settings characterized by high levels of informality	National implementation partners (including certification agencies), government agencies, international research partners  <b>Roles:</b> Implement solutions, collaborate in generating research evidence, facilitate policy uptake  This Program's AoW 1, AoW 3, AoW 4 <b>Roles:</b> Joint test solutions	Food safety innovations are proven to be cost-effective	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 2.1	Market system actors use effective components of bundled innovations for increased efficiency and reduced food loss and waste	National implementation partners, government agencies, international research partners <b>Roles:</b> Implement solutions, collaborate in generating research evidence, facilitate policy uptake  This Program's AoW 1, AoW 3, AoW 4 <b>Roles:</b> Joint test solutions	Some bundled innovations are shown to increase the affordability and accessibility of healthy foods, these innovations are profitable for value chain actors to implement, and the innovations obtain appropriate policy support	Not required
I-OC 2.2	Market system actors adopt solutions that offer inclusive access to finance by agrifood businesses	National implementation partners, government agencies, international research partners <b>Roles:</b> Collaborate in designing and implementing solutions on finance, facilitate policy uptake  Digital Transformation Accelerator <b>Roles:</b> Collaborate in finance research	Financial institutions offer attractive products for agrifood businesses, investing in value chains for healthy foods is perceived as profitable, and women and youth are attractive employees as businesses expand or they start their own agrifood businesses	Not required
I-OC 3.2	Governments and relevant international fora (including UN, G20, G7) are aware of the benefits of repurposed policy support for promoting sustainable healthy diets	National governments, international organizations <b>Roles:</b> Policy incidence analysis, policy uptake, and monitoring and scaling solutions	Political obstacles to reform have been overcome	Not required
2030-OC 1	Market system actors adopt models to improve food quality and food safety in target markets	Farmer organizations, agrifood businesses, national and subnational governments, Scaling for Impact Program <b>Roles:</b> Co-design and implement solutions, collaborate in generating research evidence, facilitate policy uptake  This Program's AoW 1, AoW 3, AoW 4, AoW 5 <b>Roles:</b> Joint test solutions	As food safety and quality solutions scale, they remain profitable for agrifood businesses to implement and signals to consumers grow trusted	N/A
2030-OC 2	Market system actors increase the availability and affordability of healthy foods and offer improved employment opportunities for women and youth	National implementation partners including financial institutions and digital finance providers, farmer organizations, agrifood businesses, producer organizations, national governments, Scaling for Impact Program <b>Roles:</b> Community facilitation co-design and implementation of solutions; shared learning; policy incidence analysis, policy uptake, and monitoring and scaling solutions	Successful bundles maintain profitability in new markets as the markets expand in scope, women and youth are attractive employees as businesses expand or they start their own agrifood businesses, demand exists for new financial innovations among agrifood businesses, supplies of new financial products directly or indirectly reach women and youth, profitable investments can be made in healthy foods, and governments provide adequate policy support	N/A

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
2030-OC 3	Governments and relevant international fora (including UN, G20, G7) reorient trade and domestic support policies to provide incentives for greater supply of sustainable healthy foods and enhance affordability of healthy diets	National governments and international organizations  <b>Roles:</b> Policy incidence analysis, policy uptake, and scaling solutions  This Program’s AoW 5, AoW 6 <b>Roles:</b> Collaborate on policy related evidence generation	Political obstacles to reform have been overcome	N/A

**Note:** Abbreviations used in the table and not defined elsewhere: 2030-OC=2030 outcome, I-OC=intermediate outcome, OP=output.

**Table A4.3.** Partnerships, assumptions, and 2030 outcome targets for AoW 3

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1	Tested end-to-end solutions for fruit and vegetables	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling solutions; vegetable seed systems support and breeding; sustainable vegetable (and diversified farming systems) production practices; postharvest research and food safety research.</p> <p>This Program’s AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions.</p> <p>Breeding for Tomorrow and Genebanks, Sustainable Farming, Climate Action, Food Frontiers and Security, and Scaling for Impact Programs and Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions. In some countries, production and/or breeding activities may be linked up with other activities to complete/complement the end-to-end approach, if feasible.</p>	Not required	Not required
OP 1.2	Tested end-to-end solutions for aquatic foods	<p>NARES, private sector, governments, academia</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling solutions; food safety research.</p> <p>This Program’s AoW 2, AoW 3, AoW 4, AoW 5, AoW 6</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions.</p> <p>Sustainable Animal and Aquatic Foods, Climate Action, and Scaling for Impact Programs and Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions. In some countries, production activities may be linked up with other activities to complete/complement the end-to-end approach, if feasible.</p>	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.3	Tested end-to-end solutions for terrestrial animal-source foods	<p>NARES, private sector, governments, academia</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling solutions; food safety research.</p> <p>This Program's AoW 2, AoW 3, AoW 4, AoW 5, AoW 6</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions.</p> <p>Sustainable Animal and Aquatic Foods, Climate Action, and Scaling for Impact Programs and Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions. In some countries, production activities may be linked up with other activities to complete/complement the end-to-end approach, if feasible.</p>	Not required	Not required
OP 2.1	Capacity sharing for food systems transformation solutions supporting sustainable healthy diets	<p>Government stakeholders, development partner groups, local food system platforms, academia,</p> <p><b>Roles:</b> Co-design of capacity-related research and joint identification of capacity sharing priorities; uptake and scaling of successful approaches.</p> <p>This Program's AoW 6</p> <p>Shared Capacity Accelerator</p> <p><b>Roles:</b> Evidence to inform capacity and leadership needs that may be applicable in target countries. Sharing lessons learned from this AoW to inform the broader capacity challenges.</p>	Not required	Not required
OP 3.1	Policy options that address multiple constraints (availability, accessibility, affordability, and desirability) to sustainable healthy diets	<p>Government stakeholders, local food system platforms, academia</p> <p><b>Roles:</b> Co-design policy-related research and jointly identify policy priorities, test policy solutions and use of evidence to inform policy adaptations.</p> <p>This Program's AoW 6</p> <p><b>Roles:</b> Evidence to inform policy frameworks and/or priorities that may be applicable in target countries. Sharing lessons learned from this AoW to inform the broader policy challenges.</p>	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 1.1	Producers increase production of nutrient-dense foods	<p>NARES, private sector, governments</p> <p><b>Roles:</b> Co-design and pilot solutions; scale solutions; support vegetable seed systems and breeding, sustainable vegetable (and diversified farming systems) production practices, and food safety research.</p> <p>Breeding for Tomorrow and Genebanks, Sustainable Farming, Climate Action, and Food Frontiers and Security Programs and Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Evidence to inform different aspects of the end-to-end approach that can be adapted for use and testing in end-to-end solutions. In some countries, production and/or breeding activities may be linked up with other activities to complete/complement the end-to-end approach, if feasible.</p>	<p>Tested end-to-end solutions (and bundled innovations within tested solutions) address gaps in nutrient-rich food production and increase demand for nutrient-rich foods, supporting increased production.</p>	Not required
I-OC 1.2	Producers, traders, vendors, and consumers reduce food loss and waste	<p>NARES, producer and trader organizations, consumer advocacy groups, private sector, government MDAs, CSOs</p> <p><b>Roles:</b> Co-design and pilot solutions, scale solutions, postharvest research, food safety research.</p> <p>This Program's AoW 2, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Evidence to inform innovations to reduce food loss and waste to test as part of end-to-end solutions.</p>	<p>Tested end-to-end solutions (and bundled innovations within tested solutions) solve postharvest loss and waste challenges.</p> <p>Producers, traders, and vendors invest in adopting and scaling solutions.</p>	Not required
I-OC 1.3	Producers, traders, vendors, and consumers improve food safety	<p>NARES, producer and trader organizations, consumer advocacy groups, private sector, government MDAs, CSOs</p> <p><b>Roles:</b> Co-design and pilot solutions, scale solutions, production system research, postharvest research, food safety research.</p> <p>This Program's AoW 2, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Test evidence to inform innovations to improve food safety as part of end-to-end solutions.</p>	<p>Tested end-to-end solutions (and bundled innovations within tested solutions) address food safety challenges.</p> <p>Producers, traders, and vendors invest in adopting and scaling solutions.</p>	Not required
I-OC 1.4	Producers, traders, and vendors contribute to improving food quality	<p>NARES, producer and trader organizations, consumer advocacy groups, private sector, government MDAs, CSOs</p> <p>This Program's AoW 2, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Test evidence to inform innovations to improve food quality as part of end-to-end solutions.</p>	<p>Tested end-to-end solutions (and bundled innovations within tested solutions) address food quality challenges.</p> <p>Producers, traders, and vendors invest in adopting and scaling solutions.</p>	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 1.5	Consumers experience increased access to perishable nutrient-rich foods	NARES, producer and trader organizations, consumer advocacy groups, private sector, government MDAs, CSOs <b>Roles:</b> Co-design, implement and joint test solutions; data analysis; policy incidence analysis, policy uptake, and scaling solutions; support vegetable seed systems and breeding and sustainable vegetable (and diversified farming systems) production practices; postharvest research; food safety research.	Tested end-to-end solutions (and bundled innovations within tested solutions) address access constraints.  Consumers are aware of increased access to nutrient-dense foods.	Not required
I-OC 1.6	Consumers experience increased affordability of perishable nutrient-rich foods	Producers and traders and related organizations, consumer advocacy groups, private sector, MDAs, CSOs, NGOs, IOs <b>Roles:</b> Co-design, implement and joint test solutions; implement complementary programming; data analysis; policy incidence analysis, policy uptake, and monitoring and scaling solutions; support vegetable seed systems and breeding and sustainable vegetable (and diversified farming systems) production practices; postharvest research; food safety research.	Increased availability (through increased production and decreased loss and waste) and accessibility of nutrient-rich foods decreases the price of nutrient-rich foods.  Increased knowledge of the range of nutrient-dense foods and how to adapt to seasonal or other fluctuations increases consumers' experience with affordability of nutrient-dense foods.  If available, consumers access and use social assistance products for nutrient-dense foods.	Not required
I-OC 1.7	Consumers increase intake of perishable nutrient-rich foods	Consumer advocacy groups, private sector, MDAs, CSOs, NGOs, IOs <b>Roles:</b> Co-design, implement and joint test solutions; implement complementary programming; data analysis; policy incidence analysis, policy uptake, and monitoring and scaling solutions	Tested end-to-end solutions (and bundled innovations within tested solutions) address availability, accessibility, and affordability constraints preventing adequate intake of nutrient-rich food.  Improved knowledge, attitudes, and practices related to nutrient-rich foods increases the desirability of nutrient-rich foods, which positively shifts consumers' dietary practices.	Not required
2030-OC 1	Effective end-to-end solutions implemented in at least five focal countries	National governments, major donors, NGOs, IOs, academia <b>Roles:</b> Co-design, implement and scale solutions; implement complementary programming; policy incidence analysis, policy uptake, and scaling solutions.	End-to-end solutions developed enable improvements across the food system to increase intake of nutrient-rich foods and, in turn, contribute to improvements in overall diet quality.	50,000 producers and consumers benefit from increased production and/or better diets
2030-OC 2	Increased national level capacity and buy-in to implement end-to-end solutions	National governments, major donors, private sector, CSOs, consumer advocacy groups, production and trader groups, NGOs, IOs, academia <b>Roles:</b> Jointly prioritize capacity sharing actions; uptake and scaling of successful approaches.	Policy support and engagement and capacity sharing activities increase the capacity of various stakeholders to implement evidence-based end-to-end solutions	End-to-end solutions scaled in at least two countries
2030-OC 3	Policies prioritize F&V, aquatic foods, and other nutrient-dense foods	National and subnational government actors <b>Roles:</b> Co-design policy-related research and jointly identify policy priorities; test policy solutions and use of evidence to inform policy adaptations.	Policy support and engagement and evidence produced facilitate increased prioritization of nutrient-dense foods in health, nutrition, and agriculture policies	10 policy changes

**Note:** Abbreviations used in the table and not defined elsewhere: 2030-OC=2030 outcome; I-OC=intermediate outcome; IO=international organization; MDAs=ministries, departments, and agencies; OP=output.

**Table A4.4.** Partnerships, assumptions, and 2030 outcome targets for AoW 4

ToC Element	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1	Culturally acceptable solutions for more affordable, accessible, available, and desirable healthy diet options for distinct agroecological settings	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p>Breeding for Tomorrow and Genebanks, this Program’s AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 1.2	Affordable, healthier, biofortified-based processed products accessible and desired by consumers	<p>NARES, private sector, governments, academia (food technology expertise), NGOs, IOs</p> <p>This Program’s AoW 1, AoW 2, AoW 3, AoW 5, AoW 6, Gender Equality and Inclusion Accelerator</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 1.3	Complementary foods for young children using multiple biofortified staples	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p>This Program’s AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 1.4	Cost-effective solutions for addressing seasonality in availability	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p>Sustainable Farming Program, this Program’s AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required

ToC Element	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 2.1	Strong, evidence-based models for further scaling of biofortified staples	<p>Government stakeholders, development partner groups, local food system platforms, academia</p> <p>Scaling for Impact, this Program's AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design, implement and joint test solutions; data analysis; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 2.2	Guidelines for private-sector engagement in biofortified processed product development	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p>Breeding for Tomorrow and Genebanks, Sustainable Farming, this Program's AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design and implement solutions; capacity sharing &amp; building of agro-processors; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 2.3	Comprehensive review of pathways for uptake of biofortified crops	<p>Academia, NARES, NGOs</p> <p>Scaling for Impact, this Program's AoW 6</p> <p><b>Roles:</b> Co-design, implement, and jointly review pathways for uptake; capacity building of students &amp; early-career scientists; facilitate policy dialogue and policy uptake; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required
OP 2.4 & 3.1	Value chain development and upgrading strategies and policy recommendations	<p>NARES, private sector, governments, academia, NGOs, IOs</p> <p>Breeding for Tomorrow and Genebanks and Policy Innovations Programs, this Program's AoW 2, AoW 3, AoW 5, AoW 6</p> <p><b>Roles:</b> Co-design, implement, and jointly review value chains; capacity building of students &amp; early-career scientists; upgrade &amp; scale solutions; shared learning</p>	Not required	Not required

ToC Element	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 1.1	Traders and markets include more nutritionally enhanced staples at scale for consumers to access	<p>NARES, private sector, governments</p> <p>This Program's AoW 2, AoW 5, AoW 6, Policy Innovations Program, Gender Equality and Inclusion Accelerator, Digital Transformation Accelerator</p> <p><b>Roles:</b> Co-design and implement solutions; capacity sharing &amp; building of market actors; facilitate policy dialogue; upgrade &amp; scale solutions; shared learning</p>	<p>Tested solutions (and bundled innovations within tested solutions) address gaps in the production of biofortified crops and nutritionally enhanced staples and increase demand for nutrient-rich foods supporting increased production.</p>	Not required
I-OC 1.2	Consumers increase demand for nutritionally enhanced staples, thus accessing key micronutrients at lower cost	<p>NARES, producer and trader organizations, consumer advocacy groups, private sector, government MDAs, CSOs</p> <p>This Program's AoW 2, Gender Equality and Inclusion Accelerator, Digital Transformation Accelerator</p> <p><b>Roles:</b> Co-design and implement solutions; mobilize community nutrition education of consumers; facilitate policy dialogue; upgrade &amp; scale solutions; shared learning</p>	<p>Tested solutions (and bundled innovations within tested solutions) to solve post-harvest loss and waste challenges.</p> <p>Producers, traders, and vendors invest in adopting and scaling solutions, including digital tools to improve linkages to suppliers.</p>	
I-OC 1.3	Researchers have evaluated and prioritized new micronutrients and bioactive compounds for potential incorporation into breeding programs	<p>NARES, academia, producer and trader organizations, consumer advocacy groups, private sector, MDAs, IOs, HarvestPlus Solutions</p> <p>Breeding for Tomorrow and Genebanks, this Program's AoW 3</p> <p><b>Roles:</b> Co-design TPPs; data analysis and evidence review; capacity sharing &amp; building among breeders and agronomists; mobilize and build the capacity of value chain actors (groups &amp; organizations); facilitate policy dialogue; shared learning</p>	<p>Sufficient primary and secondary information exists to be able to conduct ex ante assessments to inform prioritization exercises.</p> <p>Consumer nutrient needs and health risks can be assessed.</p>	
I-OC 1.4	Agro-processors use nutritionally enhanced food staples as ingredients	<p>Producers and traders and related organizations, consumer advocacy groups, policymakers, private sector, MDAs, CSOs, NGOs, IOs</p> <p><b>Roles:</b> Co-design and implement solutions; mobilize communities in the nutrition education of consumers; policy dialogue; upgrading &amp; scaling solutions; shared learning</p>	<p>Increasing availability (through increased production and decreased loss and waste) and accessibility of nutritionally enhanced food staples decrease the price of these staples.</p> <p>Increased knowledge of how to use nutritionally enhanced food staples as ingredients and how to adapt to seasonal or other fluctuations increases agro-processors experience and innovation with these foods.</p>	

ToC Element	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
I-OC 3.1	<p>Policymakers ensure systems exist to monitor nutritional content and product quality and incentivize the use of nutritionally enhanced, safe food staples in food systems</p>	<p>Government departments, consumer advocacy groups, private sector, MDAs, CSOs, NGOs, IOs</p> <p><b>Roles:</b> Joint review of data and evidence analysis; co-design and implement monitoring platforms; mobilize communities and the nutrition education of consumers; facilitate policy dialogue; upgrade &amp; scale solutions for transparency, traceability, and quality assurance; shared learning</p>	<p>Tested solutions (and bundled innovations within tested solutions) and laboratory capacity to address nutrition adequacy (toxicity), food safety, value chain transparency, and traceability constraints to safe, nutrient-rich food exist.</p> <p>Improved knowledge, attitudes, and practices related to nutrient-rich foods increase their desirability, which positively shifts consumers' dietary preferences.</p>	
2030-OC 1	<p>Increased intake and reliable supply of selected micronutrients from affordable biofortified and health-enhanced staples and processed products derived from them</p>	<p>National governments, major donors, NGOs, IOs, academia</p> <p><b>Roles:</b> Co-design, implement, and jointly review solutions for uptake; build capacity of students and early-career scientists; upgrade &amp; scale solutions; shared learning</p>	<p>End-to-end solutions developed enable improvements across the food system to increase intake of biofortified and health-enhancing staples (in raw and processed form) and, in turn, contribute to improvements in overall diet quality and livelihoods</p>	<p>At least 150,000 direct producer and consumer beneficiaries</p>
2030-OC 2	<p>Effective solutions for sustained uptake and scaling of biofortified and health-enhancing staples implemented in at least five focal countries</p>	<p>National governments, major donors, NGOs, IOs</p> <p><b>Roles:</b> Facilitate policy dialogue; scale solutions; monitor results</p>	<p>Upgrade value chains through institutional markets and across the inform food system have been documented in accessible guidelines for different types of end users</p>	<p>At least 50 organizations are using a solution for sustained uptake at scale+</p>
2030-OC 3	<p>Policies prioritize biofortified and health-enhancing staples</p>	<p>National governments, local and regional policy platforms, consumer advocacy groups, private sector, MDAs Policy Innovations Program</p> <p><b>Roles:</b> Facilitate policy dialogue; scale solutions; monitor results</p>	<p>Policy support and engagement and evidence produced facilitate increased prioritization of biofortified and health-enhancing staples in health, food system, and agriculture policies.</p>	<p>At least 10 policy changes+</p>

**Note:** Abbreviations used in the table and not defined elsewhere: 2030-OC=2030 outcome; I-OC=intermediate outcome; IO=international organization; MDAs=ministries, departments, and agencies; OP=output.

**Table A4.5.** Partnerships, assumptions, and 2030 outcome targets for AoW 5

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1 and 2.1	Tested and adapted multisectoral solutions deliver equitable impacts on diets and nutrition outcomes by addressing the accessibility, affordability, and desirability of sustainable healthy diets	National universities/research institutes, governments, nongovernmental implementation partners	Not required	Not required
OP 2.2	Tested and adapted gender-transformative solutions support equitable diet, nutrition, and income impacts across the food system	National universities/research institutes, governments, nongovernmental implementation partners	Not required	Not required
OP 1.2 and 2.3	Program guidance and policy and financing options address multiple constraints (availability, accessibility, affordability, and desirability) to sustainable healthy diets, for women and youth in particular	National universities/research institutes, governments, funders	Not required	Not required
OP 1.3 and 2.4	Convening and decision-support provided to national-level policy communities developing food systems transformation toward SHD, and nutrition strategies and actions	National advocacy partners, national governments	Not required	Not required
IO-OC 1.1	Government and non-government organization programs in diverse sectors integrate evidence from CGIAR innovations into programs and policies that reach and benefit populations at risk of poor diets and nutrition outcomes	National governments, national and international implementation partners, major donors	Policy windows for program updates and nutrition strategies are available for integration of evidence; policy community open to evidence integration	Not required
IO-OC 1.2 and 2.1	Policy communities are more aware of approaches to tackle diverse determinants of sustainable healthy diets	National governments, implementation partners, funders	Policy community amenable to and engaged in dialogue on SHD and nutrition	Not required
2030-OC 1	20 million people reached by programs that integrate evidence and innovations from CGIAR research	National governments, national and international implementation partners, major donors	Across target countries, policymakers are open to policy changes and financing (if needed) to integrate evidence and recommendations	Number of people reached by key programs (social protection, nutrition behavior change, school-based programs, women's livelihood programs)
2030-OC 2	The affordability of healthy diets is improved for target vulnerable populations	National governments, national and international implementation partners, major donors	Financing is available, accessible, and allocated to tackle affordability challenges	Percent of population who can afford a healthy diet

**Table A4.6.** Partnerships, assumptions, and 2030 outcome targets for AoW 6

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 1.1	Tested contextual knowledge and knowledge translation strategies; related advocacy	<p><b>Partners:</b> Governments, regional and global organizations/ platforms, international and national universities, NARES, NGOS, relevant CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, test outputs, disseminate evidence</p>	Not required	Not required
OP 1.2	Targeted capacity-sharing events on evidence-to-policy action and strategic engagement for change	<p><b>Partners:</b> Governments, regional and global organizations/ platforms, international and national universities, NARES, NGOS, relevant CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, joint research, test outputs, disseminate evidence</p>	Not required	Not required
OP 2.1	Multisectoral contextualized food systems and nutrition coordination mechanisms recommendations	<p><b>Partners:</b> Governments, regional and global organizations/ platforms, international and national universities, NARES, NGOS, relevant CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, joint research, test outputs, disseminate evidence</p>	Not required	Not required
OP 3.1	A leadership development context-adaptable curriculum; regional and global ToT and leadership training	<p><b>Partners:</b> Leadership development organizations, governments, regional and global organizations/platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, joint research, test outputs, disseminate evidence</p>	Not required	Not required
OP 3.2	Targeted capacity-sharing/ training events, workshops; tested capacity sharing modalities	<p><b>Partners:</b> Leadership development organizations, governments, regional and global organizations/platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, test outputs, disseminate evidence</p>	Not required	Not required
OP 3.3	Well-functioning CoP across the CGIAR and partners	<p><b>Partners:</b> Regional and global organizations /platforms, NARES, NGOs, all CGIAR Science Programs/Accelerators</p> <p><b>Role:</b> co-design, co-convene, jointly test outputs, disseminate evidence</p>	Not required	Not required

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
OP 3.4	Regional or continental food systems, diets, and nutrition leadership platforms established as CoPs	<p><b>Partners:</b> Regional and global organizations /platforms, NARES, NGOs, relevant CGIAR Science Programs/Accelerators</p> <p><b>Role:</b> co-design, co-convene, jointly test outputs, disseminate evidence</p>	Not required	Not required
I-OC 1.1	Enhanced knowledge translation and evidence uptake mechanisms in place that influence FST agendas in target countries and regions and global platforms	<p><b>Partners:</b> Governments, regional and global organizations/ platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, conduct joint research and testing of outputs, disseminate evidence</p>	National government and NGO implementing stakeholders and CGIAR science program/bilateral staff participate effectively in knowledge translation capacity sharing events and make efforts to apply lessons learned in their diverse professional/ community settings.	Not required
I-OC 3.1	Strengthened internal leadership capacity for diet and nutrition transformation among CGIAR programs and partners in food systems for better diets and nutrition	<p><b>Partners:</b> Leadership development organizations, governments, regional and global organizations/platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, conduct joint research and testing of outputs, disseminate evidence</p>	CGIAR program and bilateral staff and partners have strengthened understanding of the principles of leading change in their diverse contexts; they are willing to apply the principles effectively in relevant work, leading to stronger systems thinking for transformative change.	Not required
2030-OC 1	Adoption of evidence-based solutions and application of transformative food system actions/behaviors in at least five countries with strong stakeholder engagement	<p><b>Partners:</b> Leadership development organizations, transformation pathway implementing governments, regional and global organizations/platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, conduct joint research and testing of outputs, disseminate evidence</p>	Government and partner implementers of transformation pathways have a strong understanding of systems thinking and are able to apply this to decisions on what evidence-based solutions can make a difference in their settings. They are able to leverage the potential synergies to promote impact.	Number of countries (at least five) reflecting stronger coherence of actions associated with transformation pathway actions and using tools developed by the program
2030-OC 2	Strengthened coordination and governance mechanisms and networks for at least five countries and at least one regional body	<p><b>Partners:</b> Governments, regional and global organizations/ platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, conduct joint research and testing of outputs, disseminate evidence</p>	Government and partner implementers of transformation pathways at county/ regional levels experience change in coordination and governance behaviors that propels positive change,	Number of countries and regions reflecting strong and well-functioning coordination and governance mechanisms

ToC Element #	Statement	Partners (including internal) and roles	Assumption (for outcomes only)	Indicator and target (for 2030 outcomes only)
2030-OC 3	Enhanced individual and institutional capacities and leadership for FST for better diets and nutrition in 10 countries	<p><b>Partners:</b> Leadership development organizations, governments, regional and global organizations/platforms, international and national universities, NARES, NGOs, all CGIAR Science Programs/ Accelerators</p> <p><b>Role:</b> co-design, co-convene, provide evidence, conduct joint research and testing of outputs, disseminate evidence</p>	Staff members in partner institutions who participate in training change their leadership behavior to form a critical mass of individual and institutional capacities to propel meaningful change in coherence of FST actions.	Number of countries with a critical mass of individual and institutional capacities for FST reflected by meaningful transformative change

## Appendix 5. Description of the open research idea submission process

The Better Diets and Nutrition Writing Team solicited submissions of research ideas for this Program from across CGIAR in June and July 2024 as an inclusive and open single-window input mechanism for research ideas for the overall proposal. An online form (<https://forms.gle/rEnA21BtTuAAvLHV7>) was used to collect ideas and their supporting details from all CGIAR scientists interested in diet and nutrition research to assess how they might fit in the Program.

- Submitters provided 300-word research idea abstracts that also included information on submitting Centers, geographies, potential partners, and several other details, including how their ideas linked to the first framing of the Program’s Areas of Work.
- Area of Work writing subgroups reviewed and consolidated the specific ideas from the research submissions into broader thematic research questions for each Area of Work.
- Analyses of the submissions also helped to generate the first list of potential priority countries for CGIAR’s research portfolio on Better Diets and Nutrition.

The list of more than 150 submitted research ideas is available [in this Excel file](#).

## Appendix 6. Key result stories from SHiFT, FRESH, and Rethinking Food Markets, by country (2022–23)

### Ethiopia

Food-Based Dietary Guidelines as a “game changer” to transform Ethiopia’s food systems

<https://www.cgiar.org/initiative-result/food-based-dietary-guidelines-as-a-game-changer-to-transform-ethiopias-food-systems/>

The pathway to genetic gains in Ethiopian dairy cattle project

<https://www.cgiar.org/initiative-result/the-pathway-to-genetic-gains-in-ethiopian-dairy-cattle-project/>

### Nepal

Transforming Nepal’s dairy buffalo through partnerships

<https://www.cgiar.org/initiative-result/transforming-nepals-dairy-buffalo-through-partnerships/>

### Nigeria

Genetically improved tilapia supports Nigeria’s aquaculture goals

<https://www.cgiar.org/initiative-result/genetically-improved-tilapia-supports-nigerias-aquaculture-goals/>

### Tanzania

Engaging stakeholders to shape nutrition policy

<https://www.cgiar.org/initiative-result/engaging-stakeholders-to-shape-nutrition-policy/>

### Timor-Leste

Fisheries monitoring system puts catch information, nutrition data, and more in the hands of decision-makers

<https://www.cgiar.org/initiative-result/fisheries-monitoring-system-puts-catch-information-nutrition-data-and-more-in-the-hands-of-decision-makers/>

### Vietnam

Research and collaboration lay the foundation for food systems transformation in Vietnam

<https://www.cgiar.org/initiative-result/research-and-collaboration-lay-the-foundation-for-food-systems-transformation-in-vietnam/>

Advancing food systems transformation in Vietnam

<https://www.cgiar.org/initiative-result/advancing-food-systems-transformation-in-viet-nam/>

### Multicountry

Capacity sharing to support food systems transformation [in Ethiopia and Vietnam]

<https://www.cgiar.org/initiative-result/capacity-sharing-to-support-food-systems-transformation/>