



RESEARCH  
PROGRAM ON  
Agriculture for  
Nutrition  
and Health

Led by IFPRI

2019

Annual Report to the  
CGIAR System Organization



Photo: Janet Hodur/IFPRI

A4NH is led by the International Food Policy Research Institute (IFPRI) and managed along with The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), the International Livestock Research Institute (ILRI), the London School of Hygiene and Tropical Medicine (LSHTM), and Wageningen University and Research (WUR).

Our five flagships are led by: Wageningen University and Research (Flagship 1); the HarvestPlus program of IFPRI (Flagship 2); the International Livestock Research Institute (Flagship 3); the International Food Policy Research Institute (Flagship 4); and the International Livestock Research Institute and the London School of Hygiene and Tropical Medicine (Flagship 5).

Alliance



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## Executive Summary

The CGIAR Research Program on Agriculture for Nutrition and Health (A4NH) seeks to realize the potential of agricultural development to make significant contributions to improving the nutrition and health of people worldwide. A4NH is led by the International Food Policy Research Institute (IFPRI) and managed by four other CGIAR Centers – The Alliance of Bioversity International and the International Center for Tropical Agriculture (CIAT), the International Institute of Tropical Agriculture (IITA), and the International Livestock Research Institute (ILRI) – and two academic institutions, the London School of Hygiene & Tropical Medicine (LSHTM) and Wageningen University and Research (WUR). Some 2019 accomplishments that you will read about in this report include:

### Evidence-based contributions to programs and policies

- The Government of Ethiopia adopted the development of food-based dietary guidelines as a priority, government-led program, helping consumers to understand what dietary patterns promote health.
- When the African Union launched its second Biennial Review, included among its indicators was the new Africa Food Safety Index that will enable African countries to measure, monitor, and benchmark progress on food safety.
- Donors reported that a review on the relevance of child stunting as an outcome of interest in programs targeting undernutrition is having an impact on their decisions around which nutrition outcomes to focus when funding and designing programs.

### New investments based on lessons learned

- The United States Agency for International Development invested \$10 million in its first-ever Feed the Future Innovation Lab on food safety.
- The Federal Ministry of Economic Cooperation and Development invested \$8 million in a new One Health Research, Education and Outreach Centre for Africa. The Centre's initiatives will focus on reducing incidences of zoonotic diseases; food-borne diseases; and antimicrobial resistance, plus leverage other German investments in CGIAR.

### Progress in scaling innovations with partners

- The Rwanda Agricultural Board took over a successful iron bean delivery program and co-developed an operational platform to scale-up delivery beyond the latest estimates (442,000 households were growing iron beans and 15 percent of the population were consuming them).
- The Kenyan Cereal Millers Association adopted a quality control approach to testing maize for aflatoxins ensuring safer maize will be available for up to 10 million Kenyan consumers.
- Now nine countries have Aflasafe products registered for use and with new distribution partners, now Aflasafe is available at more than 30 distribution points across seven countries in Africa.

### New partnerships to support science and scaling

- The CGIAR Antimicrobial Resistance Hub was launched, formalizing partnerships with four CGIAR institutions and the International Centre for Antimicrobial Resistance Solutions, Swedish University of Agricultural Sciences, and LSHTM.
- As interest in food systems gains momentum worldwide, A4NH used its experience to foster collaboration across CGIAR.
- A to Z Textile Mills Ltd. obtained the license to manufacture and distribute Aflasafe in Tanzania. Now, three companies and one government have been licensed to manufacture and distribute Aflasafe products in five countries.

More research outputs, events, and achievements can be found in the interactive [A4NH 2019 Annual Report](#), on our [website](#), or [@A4NH CGIAR](#) on Twitter.

# 1. Key Results

## 1.1 Progress Towards SDGs and SLOs

The CGIAR Research Program (CRP) on Agriculture for Nutrition and Health (A4NH) seeks to realize the potential of agricultural development to contribute to improved nutrition and health of people worldwide. A4NH research is conducted in five flagships. Three cross-cutting units help to catalyze research outputs into development outcomes and impact. A4NH places emphasis on aligning with country partners, particularly in five focus countries – Bangladesh, Ethiopia, India, Nigeria, and Vietnam.

As CGIAR's only research program on nutrition and health, A4NH contributes to the system-level outcome (SLO) on food and nutrition security for health. Our 2019 contributions to the SLO are summarized in Table 1 and described below:

- In 2019, 5 million farming households were reached with biofortified planting material, bringing the cumulative and net (of disadoption) number of farming households growing and consuming biofortified crops globally to 8.5 million. In 2019, 27 new biofortified crop varieties were released, bringing the total number of releases through HarvestPlus efforts to 242 varieties of 11 crops, across 30 countries. When orange-fleshed sweet potato varieties released through the International Potato Center (CIP) are included, this figure increases to 370 varieties of biofortified crops. In addition, thousands of varietal lines were in various stages of testing in 60 countries.
- Approximately 95,000 farmers treated more than 120,000 hectares with Aflasafe™ in 2019, supporting production of maize and groundnut with safe aflatoxin levels across nine countries in sub-Saharan Africa. Large-scale use of Aflasafe contributed to improved food safety in most of the areas where crops were treated. According to an external evaluation of the AgResults initiative in Nigeria, Aflasafe uptake – defined as smallholders who applied Aflasafe on at least one maize plot – increased by 56 percentage points in the AgResults villages over the course of the six-year project. The project created a niche market for Aflasafe-treated maize with a robust number of agri-businesses, although the market was smaller than expected in terms of the quantity of maize transacted. At present, Aflasafe is accepted as a solution in supporting smallholders' access to higher-value maize and groundnut markets. There is less appreciation of aflatoxin health impacts and this had been suggested as one area to pursue.

## 1.2 Progress towards Outputs and Outcomes

### 1.2.1 Overall Progress

We highlight two 2019 achievements made beyond and across our five flagships. Details can be found in other parts of this report.

- As interest in food systems gains momentum worldwide, A4NH is using its experience to foster collaboration across CGIAR. In its role as an integrating CRP, A4NH convened two regional CGIAR [food system consultations](#) and supported several follow-up actions. One was to [map current CGIAR food systems research](#) and another was to further a common understanding of [food environment](#) research and methods and develop a toolkit. A third was to provide support to other CRPs, starting with the CRPs on Forests, Trees, and Agroforestry (FTA) and FISH.
- There is an accelerating trend in increased attention to and greater investment in food safety. The [first International Conference on Food Safety](#) was held in Addis Ababa ahead of the International Forum on Food Safety and Trade. A4NH researchers helped to organize this

major event and delivered important plenary presentations. In addition, the Africa Food Safety Index was launched by the African Union (AU). The index, developed by a multidisciplinary team of experts led by the Partnership for Aflatoxin Control in Africa (PACA), in consultation with and with support from A4NH researchers from ILRI, will help African countries measure, monitor, and benchmark progress on key food safety indicators. Specifically, [data from the index will be integrated with the Biennial Review](#), a monitoring and evaluation tool to assess how member countries are implementing the 2004 Malabo Commitments.

### 1.2.2 Progress by Flagships

#### FP1 – Food Systems for Healthier Diets

- A suite of tools and methods to support food systems research were developed and have been applied to varying extents in all four focus countries (Bangladesh, Ethiopia, Nigeria, and Vietnam) including but not limited to a methodology to assess food system policies, insights in dietary gaps at (sub)national level, and benchmarks and guidelines for healthy diets at individual and household levels.
- Several food system innovations focused on consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods such as fruits and vegetables, poultry, and fish in the four focus countries were designed. The testing of most of these innovations remains ongoing in 2019. Once evaluated, they will provide the necessary empirical evidence on how food system innovations could transform the existing food systems to lever important outcomes related to diet, sustainability and equity.
- The Government of Ethiopia and the Ethiopian Public Health Institute (EPHI) adopted the development of [food-based dietary guidelines](#) (FBDG) for Ethiopia as a "flagship program." Development of FBDG is an ongoing collaborative effort of A4NH, EPHI, and the Food and Agriculture Organization of the United Nations (FAO).

#### FP2 – Biofortification

- Twenty-seven biofortified crop varieties were released, including the [first zinc maize hybrid](#) and [first iron beans](#) in Colombia, and the first zinc rice in Latin America (Bolivia) and in [Indonesia](#).
- Additions were made to the growing evidence base on the impact of biofortification on [nutrition and health outcomes](#), and the [impact of](#) and [learnings](#) from programs. Qualitative gendered analyses of delivery models were completed for Colombia, Rwanda and Zambia. Results of the Rwanda and Zambia analyses were included as a case study in the 2019 Annual Trends and Outlook Report. A joint HarvestPlus and FAO [brief](#) described how biofortification can contribute to improved food systems and public health. A World Food Programme (WFP) [food procurement policy included biofortification](#) as a way to promote healthy diets in WFP's country strategic plans.
- HarvestPlus and the Rwanda Agricultural Board (RAB) co-developed an operational platform to scale-up delivery. HarvestPlus handed over the iron bean delivery program to RAB and this platform.
- The Biofortification Prioritization [Index](#) and [online tool](#) were launched to help stakeholders identify potentially high impact biofortification interventions for targeting.
- Twenty-four countries have now included biofortification in their policies and strategies.

#### FP3 – Food Safety

- The AU launched its second Comprehensive Africa Agriculture Development Programme Biennial Review, [including among its indicators a new index on food safety](#). The index was developed by a multidisciplinary team of experts led by PACA, in consultation with ILRI, with support from A4NH, and validated by AU country member states.



- Six trials testing the “three-legged stool approach” (enabling, empowering, incentivizing) for improving food safety in informal markets were launched by ILRI researchers and partners.
- IITA and partners made progress along their pathway to scaling out Aflasafe™ in Africa. Production by a private company started in Senegal using improved processes. One new company, [A to Z Textile Mills, Ltd., was licensed to manufacture and distribute Aflasafe products in Tanzania](#) and new distribution partners were added in Burkina Faso, Ghana, and Kenya. Now, Aflasafe is available at more than 30 distribution points across seven countries in Africa.
- Aflatoxin analysis proficiency testing, co-developed and evaluated by IFPRI researchers, has been taken up by the Kenyan Cereal Millers Association, which represents 40 percent of total grain milling capacity for maize in Kenya. The testing and certification are offered by the [Aflatoxin Proficiency and Testing for Africa](#) program.

#### **FP4 – Supporting Policies, Programs, and Enabling Action through Research**

- IFPRI researchers applied a methodology for measuring and analyzing food prices and affordability in a variety of contexts. They found that the diet developed for the EAT-Lancet Commission on Food, Planet, Health meant to improve human and planetary health would be [unaffordable for at least 1.58 billion people](#), mostly in sub-Saharan Africa and South Asia.
- Over the past decade, reducing stunting has become a global development objective. A [2019 study from A4NH](#) challenged the general belief that interventions aimed at reducing stunting will automatically lead to improvements in other outcomes associated with (but not caused by) stunting including cognitive development, school performance, economic productivity and health at adulthood. The authors highlight the need to focus on outcomes that are directly relevant such as diets, micronutrient status, or childhood development. The study has been extensively cited and donors reported that the research has had an impact on their decisions around which nutrition outcomes to focus on when funding and designing programs.
- Several nutrition- and gender-sensitive multi-sectoral program evaluations were completed. In one study, IFPRI researchers demonstrated with longitudinal data how improving women's empowerment through a gender- and nutrition-sensitive agriculture program contributed to reducing child wasting in Burkina Faso.

#### **FP5 – Improving Human Health**

- The [CGIAR Antimicrobial Resistance \(AMR\) Hub](#) was launched, formalizing partnerships with four CGIAR institutions and the International Centre for Antimicrobial Resistance Solutions, Swedish University of Agricultural Sciences, and LSHTM to support activities initially in Bangladesh, Kenya, Uganda and Vietnam.
- The Federal Ministry of Economic Cooperation and Development (BMZ) invested multi-year funding in a [new One Health Research, Education and Outreach Centre for Africa](#), which will develop collaborative research efforts on food safety and the control of zoonoses.
- A [new line of research funded by the ‘Our Planet Our Health’ scheme](#) of the Wellcome Trust was initiated within the existing collaboration with AfricaRice and expanded to include the International Rice Research Institute (IRRI). It concerns AWD (alternate wetting and drying) methods. The new work asks whether a modification of AWD can reduce mosquitoes as well as methane emitted from rice fields, while also reducing water usage and maintaining yield.
- Earlier attempts by ILRI and partners to develop a pen-side test (a diagnostic that can provide real-time information about the health status of an animal or herd) for cysticercosis were not successful. A new partnership with the University of Munich will re-start efforts to develop and validate the test.

### 1.2.3 Variance from Planned Program for 2019

*(a) Have any promising research areas been significantly **expanded**? If so, for each example, please explain clearly where the demand came from (promising research results, demand from partners etc.). Where has the money for expansion come from?*

- A4NH used Window 1/Window 2 (W1/W2) funds for two food systems convenings and accelerate several follow-up actions. At the request of the CGIAR System Office, A4NH also convened a workshop with French partners in September 2019 to develop plans for joint research and expand national food systems assessment to countries beyond the A4NH focus countries.
- In 2019, funding for research on food safety in informal or traditional markets increased from a combination of sources including W1/W2, the Bill & Melinda Gates Foundation, UK Department for International Development, and BMZ. Several new studies are underway.
- The portfolio of food price research in A4NH grew, some funded by the Bill & Melinda Gates Foundation with support from W1/W2. Several 2019 studies were in response to the universal healthy reference diet recommended by the EAT-Lancet Commission on Food, Planet, Health. A4NH researchers are investigating how this might apply to low- and middle-income countries.

*(b) Have any research lines been dropped or significantly **cut back**? If so, please give specific examples and brief reasons. If funding was reallocated to other work, where did the money go?*

Research topics and objectives remained consistent with what was proposed in the Full Proposal.

- We expected that W1/W2 resources in Flagship 2 for targeted breeding would decrease as biofortification was mainstreamed into CGIAR crop breeding programs and for delivery as national programs and the private sector scale up the technology. This transition started in 2019.
- As expected, the aflatoxin work in Flagship 3 led by IITA is shifting focus from evidence generation to scaling Aflasafe. To date, three companies have been licensed to manufacture and distribute Aflasafe products in four countries with the most recent being A to Z Textile Mills, Ltd., in Tanzania. In Kenya, the Government is manufacturing and distributing the KE01 product. In 2019, new distribution partners were added in Burkina Faso, Ghana, and Kenya. Now, Aflasafe is available at more than 30 distribution points across seven countries in Africa.

*(c) Have any Flagships or specific research areas **changed direction**? If so, please describe how, and the reason.*

- It was not known when preparing the Full Proposal, but the HarvestPlus pivot (a reorientation from generating long-term evidence about biofortification to supporting delivery at scale) is part of a strategic long-term plan for the leader of Flagship 2. This has meant reductions in investments in targeted breeding and delivery, completion of most efficacy studies (except for zinc), and greater attention to scaling through key partnerships.
- The portfolio of evaluations of what agriculture can do to improve nutrition and how to implement effective programs, funded through bilateral sources with W1/W2 support, will be winding down in 2020-2021. Flagship 4 is actively exploring funding for research around

urban diets, overweight and obesity, and nutritional needs of adolescents. For example, in 2019, additional W1/W2 funds were allocated for a set of case studies investigating how political commitment and policy traction are being generated in real time to deal with overweight and obesity.

#### 1.2.4 Altmetric and Publication Highlights

A4NH's most popular publications in 2019 addressed various aspects of malnutrition, ranging from undernutrition and issues of stunting and micronutrient deficiencies, to rising concerns around overweight and obesity. Researchers examined drivers and indicators, addressed equity issues related to gender, geography, and affordability, expressed opinions and offered potential solutions. The popularity of the work underscores the importance of the subject, and A4NH's reputation for high-quality, trusted research addressing it.

- With an Altmetric score of 1031, "[Rising rural body-mass index is the main driver of the global obesity epidemic in adults](#)," by the Non-Communicable Disease (NCD) Risk Factor Collaboration (IFPRI researcher Agnes Le Port is a member), published in *Nature*, generated 77 news stories in dozens of publications, including The Telegraph, Yahoo! News, and Discover magazine, as well as many in other languages. It was tweeted about more than 900 times, with an upper bound of nearly 5 million followers.
- "[The Relative Caloric Prices of Healthy and Unhealthy Foods Differ Systematically Across Income Levels and Continents](#)," by IFPRI researchers, Derek Headey and Harold Alderman, published in the *Journal of Nutrition*, earned an Altmetric score of 423, with 17 blog posts and 30 news articles generated by the paper.
- From research conducted by HarvestPlus came "[Biofortification of field-grown cassava by engineering expression of an iron transporter and ferritin](#)," published in *Nature Biotechnology*, which earned an Altmetric score of 285 based on more than 300 tweets reaching an upper bound of more than 800,000 followers and nine news stories.
- The relationship between teenage pregnancy and child undernutrition was explored in "[Social, biographical, and programmatic factors linking adolescent pregnancy to early childhood undernutrition: A path analysis of India's 2016 National Family and Health Survey](#)," by Phuong Nguyen and colleagues. The paper, which was published in *The Lancet Child and Adolescent Health*, garnered an Altmetric score of 183, generating 21 news stories and three blog posts.
- Jef Leroy and Edward Frongillo's piece "[Perspective: What Does Stunting Really Mean? A Critical Review of the Evidence](#)," led to a number of supplemental pieces, including a video, 14 blog posts, and more than 130 tweets, resulting in an Altmetric score of 144.

For the 2019 annual report, the Altmetric scores were calculated based on 229 peer-reviewed journal publications with known DOIs.

### 1.3 Cross-Cutting Dimensions

#### 1.3.1 Gender

(a) List important **research findings, methods or tools, capacity development, policy changes or outcomes** in the reporting year related to gender issues.

A major activity of A4NH's Gender, Equity, and Empowerment (GEE) Unit is a collaboration with Flagship 4 on the [second phase of the Gender, Agriculture, and Assets Project \(GAAP2\)](#). GAAP2 is developing a [project-level Women's Empowerment in Agriculture Index \(pro-WEAI\)](#), with integrated quantitative and qualitative work, to measure women's empowerment and inclusion in agricultural development projects, with 13 pilot projects underway. The pro-WEAI helps assess women's empowerment in an agricultural development project setting, diagnose areas of



disempowerment, design strategies to address deficiencies, and monitor and evaluate project outcomes. In 2019, most projects completed their endline data collection and started estimating the impacts of their interventions on women's empowerment outcomes. Following the launch of the pilot version of pro-WEAI in 2018, two papers on pro-WEAI [development](#) and [validation](#) were published in *World Development* in 2019. Since the original WEAI launched in 2012 (co-developed by A4NH and CRP on Policies, Institutions and Markets (PIM) researchers with external partners), more than 106 organizations in more than 56 countries have fielded and adapted versions of the index.

A4NH's [Gender-Nutrition Idea Exchange \(GNIE\)](#) blog continues to provide a forum for researchers to share their latest research and reflections. In 2019, the GNIE blog featured posts by the A4NH research community on the pro-WEAI and from those beyond on time use measurement strategies, role of gender in irrigation technology adoption, links between improving women's empowerment and child nutrition, and the equity issues that emerged in a study of milk consumption in Vietnam. With more than 21,700 unique views of the blog in 2019, GNIE continues to be an effective tool for quickly and widely disseminating valuable gender and equity approaches.

*(b) Mention any important findings that have influenced the direction of the CRP's work, and how things have changed.*

As noted above, there have been significant outreach and capacity development efforts for pro-WEAI and other WEAI adaptations (led by the IFPRI gender team working in both A4NH and PIM). This demand led to an expansion of these efforts with donors and implementing partners to support their project portfolios and partners. The African Union Development Agency New Partnership for Africa's Development (AUDA-NEPAD) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) supported the development of the market inclusion module in pro-WEAI through a project evaluating the impact of a vocational training program for women in Benin and Malawi. The International Development Research Centre (IDRC) has asked the GAAP2 team to provide support in using pro-WEAI in their agriculture and livestock projects in Africa and South Asia. In 2019, the GAAP2 team also started to engage with the [50 x 2030 Initiative](#) to explore the development of a new measure of women's empowerment that can be fielded in national surveys.

*(c) Have any problems arisen in relation to gender issues or integrating gender into the CRP's research?*

The cross-cutting function of the GEE Unit is designed to help the integration of gender across A4NH, such as through small equity grants to flagships, which are explained in more detail in the section on equity. As results from most of these small grants were not yet available in 2019, we will wait to report on this in more detail in 2020.

### **1.3.2 Youth and Other Aspects of Social inclusion / "Leaving No One Behind"**

*(a) List any important CRP **research findings, methods or tools, capacity development, policy changes or outcomes** in the reporting year.*

A [2017 external review](#) found A4NH research investigates several areas of equity, including gender, income, poverty, life stage, youth, and geography, but only focuses systematically on gender. In 2018-2019, we conducted a series of consultations with partners to hear their perspectives and interests in equity research. Using the recommendations from the 2017 review, 2018 consultations, and input from our management and advisory teams, A4NH commissioned a set of studies on equity in agriculture, nutrition, and health, some of which were still ongoing in 2019, but are expected to be published in 2020. These ongoing studies included a framing paper about how to engage with youth-specific aspects of food systems change and an examination of the theory of

change for Flagship 1 to identify how equity fits into impact pathways between food systems innovations and healthier diets.

One study that was completed was led by ILRI. In 2019, ILRI researchers used the equity seed grant to develop and implement a two-day training on equity issues in veterinary medicine for the first class of veterinarians at Malawi's University of Agriculture and Natural Resources. The training was designed to raise awareness of how inequities affect the livestock owners and managers with whom these future veterinarians will interact, provide practical examples of how to incorporate gender and equity considerations into their work.

*(b) Mention any important findings that have influenced the direction of the CRP's work, and how things have changed.*

Another study that was completed in 2019 was a [scoping review](#) of existing academic literature, led by the Institute of Development Studies (IDS). The intent of the review was to identify what topics in agriculture, nutrition, and health have been addressed through an equity lens and which aspects of equity have been addressed in the literature since 2008. One conclusion from this review was that equity is, overall, still an understudied area of research in agriculture, nutrition, and health. Issues such as ethnicity, disability, and age, among the different aspects shaping unequal outcomes; intersectionality among different aspects of equity, where these interact; and structural aspects such as power differentials systematically holding certain groups back were rarely mentioned in the literature identified in the review.

At the time, the expectation was that this review would inform the development of A4NH's research strategy on equity. With the news that A4NH will end in 2021, there is now no need for an A4NH strategy on equity. However, A4NH partners are considering how to integrate the lessons from the review into flagship work that will carry on post-A4NH.

*(c) Have any problems arisen in relation to youth or other aspects of social inclusion issues or integrating them into the CRP's research?*

Not necessarily, however, as described above, there is room for improvement which we are addressing.

### **1.3.3 Capacity Development**

- The first [Aflasafe for Africa Conference](#) was convened in Tanzania. IITA, along with the other organizers, brought together researchers and businesses to report on progress in commercializing Aflasafe and exchange experiences and lessons learned in the course of doing business.
- IFPRI researchers delivered two courses to strengthen leadership capacity in individuals who work in multi-sectoral environments in West Africa. The team also finalized a [suite of tools](#). The tools supply evidence that will support policymakers and other stakeholders in the use of country-level nutrition data for tracking progress, setting priorities, informing policies and programs, guiding implementation, and monitoring nutrition intervention coverage.
- As an A4NH Managing Partner, LSHTM provides CGIAR a strategic avenue to public health research. W1/W2 resources contributed to the development of an [MSc in One Health](#), co-led by LSHTM and the Royal Veterinary College. In 2019, productive links grew between this course and Flagship 5. Several One Health students were hosted by ILRI in Kenya and Vietnam, and others have contributed research on usage of veterinary and medical antimicrobials in Uganda.
- The multi-sectoral taskforce on food safety is a model for building food safety capacity, which has been successfully piloted in Vietnam. ILRI researchers adapted the model for use in Cambodia and the new taskforce was launched in early 2019. Their objectives include

conducting food safety studies, setting up food safety guidelines, developing training materials on food safety risk assessment, and policy influencing activities.

- Food systems metrics and tools, like the food-based dietary guidelines and a common set of food systems indicators, were incorporated into several trainings, MSc and PhD projects. Building awareness of food systems metrics and tools as well as capacity to use them is a key activity in Flagship 1.

### 1.3.4 Climate Change

- As mentioned elsewhere, in Flagship 5, LSHTM with AfricaRice in West Africa and with IRRI in East Africa are testing AWD. AWD has the potential to limit malaria transmission as well as emission of greenhouse gases. A recent review recently submitted for publication re-examines the relationship between irrigated rice and malaria in Africa and concludes that as Africa makes progress towards malaria elimination, rice schemes are likely to emerge as hotspots of remnant transmission.
- Rift Valley fever (RVF) is a climate-sensitive disease. ILRI researchers finalized risk maps in 2019 and trained government officers in Uganda on how to use these risk maps in contingency planning. The risk maps were produced using climate variables, among other predictors.
- The [discourse analysis work](#) co-authored by Flagship 1 researchers from CIAT and WUR in *World Development* looked explicitly at narratives around food systems and sustainability. This paper did not include the view of the private sector, so A4NH and CCAFS are coordinating an MSc project to inventory private sector narratives on food systems and sustainability in Hanoi.
- A4NH researchers from ILRI and LSHTM continued to contribute to the *Lancet Countdown on Health and Climate Change* as members of two working groups supporting dissemination in Africa.
- A4NH published a [think piece response to the 2019 Lancet Commission on the Global Syndemic of Obesity, Undernutrition and Climate Change](#). The piece briefly explains how the W1/W2-funded *Stories of Challenge* initiative in A4NH – which explores how food system problems are solved on the ground – can help respond to the Commission’s call for more positive examples and models.

## 2. Effectiveness and Efficiency

### 2.1 Management and Governance

Three notable adjustments to management in 2019 included:

- As part of a planned mid-term assessment of Phase II, the Program Management Unit (PMU) led a flagship research prioritization and budget allocation review, which involved the Planning and Management Committee (PMC) and Independent Steering Committee (ISC). Minor adjustments were made, but overall, only modest adjustments were made to future plans and the W1/W2 allocations from what was described in the Full Proposal.
- We expanded partnerships with multiple CGIAR Centers through strategic partnerships. A4NH classifies strategic partners as those that work with Managing Partners on specific flagship research. Strategic partnerships in 2019 included: the International Maize and Wheat Improvement Center (CIMMYT) with WUR on food systems (demand for food companies for cereals) as part of Flagship 1; multiple CGIAR Centers (CIAT, CIMMYT, International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), IITA, IRRI, CIP) with HarvestPlus on biofortification as part of Flagship 2; and WorldFish and the International Water Management Institute (IWMI) with ILRI in the CGIAR AMR Hub as part of Flagship 5.

- Given the revisions to CGIAR performance management expectations and standards in 2019, the PMU revised the [A4NH Governance and Management Handbook](#). This handbook provides a useful reference on the overall governance and management arrangements of A4NH and the roles and responsibilities of all the governance and management entities, including Managing Partners, Flagship Leaders, and flagship research teams.

## 2.2 Partnerships

### 2.2.1. Highlights of External Partnerships

#### *National/regional researchers and policymakers*

- Through an A4NH representative from Bioversity, CGIAR is recognized as a member of the Committee on World Food Security (CFS) Open-Ended Working Group on Nutrition. It is the only research system to be recognized as a member. Over the course of 2019, A4NH convened various parts of CGIAR in the Voluntary Guidelines for Food Systems and Nutrition consultative process. The result was what is known as the Zero Draft, the first major milestone towards the final Guidelines.
- In Vietnam, A4NH was invited to participate in technical working groups on nutrition and food systems related to FAO's national program on Zero Hunger and Scaling Up Nutrition's Civil Society Alliance. These invitations have been as a result of the successful CIAT-led implementation of a partial food systems baseline assessment in three benchmark sites and the subsequent papers and validation workshops.
- The Governments of Togo and Sudan requested assistance from IITA to design management strategies to decrease aflatoxin contamination; in Sudan, this request was accompanied with a \$3 million investment from the Agence Française de Développement to develop an Aflasafe product.

#### *Private sector*

- The [Agrobiodiversity Index](#) (ABDI), co-developed by Bioversity International, is the first standard way of measuring agrobiodiversity and helps identify concrete actions to achieve diverse, sustainable and resilient food systems. The ABDI aims to assess performance yearly and help companies/countries track their progress towards fostering sustainable food systems. In 2019, six companies were collaborating with Bioversity to include the ABDI in their corporate platforms.
- The [AgResults Aflasafe Challenge Project](#) ended in 2019. In six years, 32 agri-businesses worked with 75,786 smallholder farmers who applied Aflasafe on 99,503 hectares of maize fields in Nigeria. The external evaluation of this IITA-led project concluded that the annual net income increased by \$318, or 16 percent, per farmer.

### 2.2.2. Cross-CGIAR Partnerships

- HarvestPlus and CIP made progress in the joint effort that began in 2018 to harmonize the monitoring, evaluation, and learning and impact assessment systems for scaling biofortification. In 2019, a theory of change for commercializing biofortification and identification of key indicators was completed and in 2020, the partnership will continue to conduct field implementation of the tools developed to measure these indicators and to estimate impact at scale, sustainability, and cost-effectiveness as part of Flagship 2.
- With the CRP on FISH, Flagship 1 submitted a joint proposal, conducted national food systems reviews, and co-funded a PhD (hosted by WUR), all around the role of fish in food systems in Bangladesh and Nigeria. Flagship 1 also partnered with the CRP on WHEAT to conduct a survey of the consumer and retail landscape in Mexico City as part of a broader study on agri-food systems innovation in value chains for processed staples, and with FTA on co-learning activities about the place of trees and tree food products in food systems and how to make restoration exercises nutrition-sensitive.

- The new [CGIAR Antimicrobial Resistance \(AMR\) Hub](#) is a joint initiative of four CGIAR institutions - ILRI, IMWI, WorldFish and IFPRI – as part of Flagship 5.

## 2.3 Intellectual Assets

*(a) Have any intellectual assets been strategically managed by the CRP (together with the relevant Center) this year?*

Most of A4NH's intellectual assets are knowledge and information products that are open access. Intellectual assets associated with new varieties and germplasm for biofortified varieties are the responsibility of the CGIAR Center involved in developing them. IITA expanded registration of Aflasafe to Mozambique in 2019, bringing the total to nine out of 11 target countries in Africa with registered Aflasafe products.

*(b) If relevant, indicate any published patents and/or plant variety right applications (or equivalent) associated with intellectual assets developed in the CRP and filed by Centers and/or partners involved in the CRP, giving a name or number or link to identify them.*

Not applicable to A4NH.

*(c) List any critical issues or challenges encountered in the management of intellectual assets in the context of the CRP (or put N/A).]*

Not applicable to A4NH.

## 2.4 Monitoring, Evaluation, Impact Assessment and Learning (MELIA)

A4NH, with IFPRI's Impact Assessment unit, completed an [external evaluation of agriculture-nutrition programs and policies from 2003-2016](#). The evaluation reviewed two distinct, critical time periods in CGIAR agriculture and nutrition research, first under IFPRI, and then under A4NH Flagship 4. The evaluation concluded that efforts to address the agriculture-nutrition evidence challenge have been very successful. Progress has come through publications, including the 2014, 2015, and 2016 Global Nutrition Reports; papers on nutrition-sensitive interventions and the politics of reducing malnutrition in *The Lancet* Maternal and Child Nutrition Series; as well as through tailored reports and dialogues with stakeholders. In India and Ethiopia, there was evidence that contributions by IFPRI/A4NH research helped improve program implementation and policy making. This evaluation highlighted the quality and uptake of research evidence. However, the evaluators challenged IFPRI/A4NH to integrate and support evidence-based actions, as well as the capacity of countries to plan, implement, and evaluate those actions, particularly for poor and vulnerable people.

## 2.5 Efficiency

A4NH is designed as a multi-institutional partnership with clear roles, responsibilities, authority and accountability for the six managing partners and Lead Center. This approach has important advantages for transitioning from the current CRP modality to new coordinated research modalities delivered through CGIAR projects. Through Phase II, we will continue to emphasize the role of Managing Partners and their establishment of functional partnerships with partner institutions in research programs. We list some specific examples from 2019 below:

- We leveraged Managing Partners' resources to provide support for country coordination in A4NH's five focus countries – IFPRI in Bangladesh and India, ILRI in Ethiopia, IITA in Nigeria, and CIAT in Vietnam. We leveraged ILRI resources and partnerships in the establishment of the new CGIAR AMR Hub in Nairobi. This included basing the hub at ILRI's Bioscience East and Central Africa (BecA) platform for lab infrastructure and tapping into ILRI and LSHTM's One Health partnerships for AMR.

- We increased investment in cross-CGIAR coordination on biofortification with CIP/the CRP on Roots, Tubers, and Bananas on monitoring and evaluation and scaling and commercialization. During the year, we planned for cooperation on policy and advocacy and agreed on a joint evaluation on biofortification advocacy in Africa to be completed in 2020.
- Based on the A4NH-CGIAR food systems consultations in 2019, new multi-institutional partnerships are being developed for research on food environments and on planning work on food group upgrading for animal source foods, fruits and vegetables, and foods from processed staple crops using common tools and methods.

## 2.6 Management of Risks to A4NH

Risks and how they are managed changed dramatically with the decision to close all CRPs at the end of 2021. The A4NH ISC and PMC have discussed how A4NH can best manage the transition to new research modalities, given the expected central role of nutrition and health outcomes in future CGIAR research.

**Institutional risks.** One strength of A4NH is its multi-institutional management arrangement. Managing Partners have roles, responsibilities, authorities and accountability within A4NH. They have built and will continue to build their capabilities for these roles, which include research program design and implementation, ethics, and monitoring and evaluation. A4NH has systematically documented these roles in the [A4NH Governance and Management Handbook](#).

**Programmatic risks.** As an integrating program that coordinates much of CGIAR research on nutrition and health outcomes, A4NH has listed several important research result streams that it needs to consolidate and align with the future CGIAR research modalities. During 2020, for each of our listed research streams, we will consolidate lessons into briefs as well as reach out to support the formation of institutional partnerships that will build these research streams.

**Contextual (Partnership) Risks.** A key challenge in the One CGIAR change process will be to clearly inform and listen to partners at national, regional and global levels. Many nutrition and health partners are relatively new and unique to CGIAR. A4NH will actively engage across CGIAR to facilitate the engagement of key nutrition and health partners in the One CGIAR change process.

## 2.7 Use of W1/W2 Funding

In 2019, 13 percent of W1/W2 funding to A4NH was used for cross-cutting support including program management and support costs at the CRP level, and 87 percent to the flagship programs. The funds have been allocated strategically, over multiple years, to support joint research (cross-flagship, cross-CGIAR, and with local partners), help A4NH disseminate results more widely, and build targeted partnerships and capacity in our five focus countries. Some highlights of the 2019 W1/W2 investment are listed below with more detail in Table 12.

- Engagement with CGIAR and others in food systems approaches.
- Expansion of equity research, including a scoping review, plus a chapter on how nutrition-sensitive agricultural projects can contribute to gender equity, as part of a book on critical ideas for the next generation of gender research, one of the final outputs of the CGIAR Collaborative Platform for Gender Research.
- Support to national partners in the five focus countries, linking A4NH research to national government and partner priorities and actions and a range of other partnership building and capacity development activities.
- Seven new research initiatives in all five flagships, including mixed-methods research on the drivers of and potential responses to the double burden of malnutrition.
- First International Conference on Food Safety and development of the Africa Food Safety Index with PACA.



- Development and dissemination of pro-WEAI with multiple implementing partners and an important think piece on the global focus on stunting as a nutrition outcome.
- Establishment of the CGIAR AMR Hub to support country solutions for mitigating AMR.

### **3. Financial Summary**

The 2019 A4NH financial summary shows little change from 2018. Expenditures from W1/W2 represent approximately 25 percent of overall funding, with the remainder from W3/bilateral grants to the A4NH Managing Partners. Flagship 2 and Flagship 4 remain the largest flagships by expenditure, each with a substantial portfolio of coordinated grants aligned with their long-term objectives. Flagship 1 and Flagship 3 also have developed significant financial and human resources over the past few years.

By source, expenditures from W1/W2 decreased slightly (-1.5%) and grants to managing partners aligned with A4NH research also decreased slightly (-6%). Note that for W1/W2, as in 2018, expenditures in 2019 exceeded income as we relied on carryover funding from Phase I to cover the decline in CGIAR funding and to support new initiatives.

## Part B. TABLES

**Table 1: Evidence on progress towards SRF targets (sphere of interest)**

*A4NH committed to contributions to three SLO targets in our Full Proposal for Phase II. The others are not shown in this table.*

SLO Target (2021)	Brief summary of new evidence of CGIAR contribution	Expected additional contribution before end of 2022
100 million more farm households have adopted improved varieties, breeds, trees, and/or improved management practices.	5 million farming households were reached with biofortified planting material in 2019, bringing the total number of farming households growing and consuming biofortified crops globally to 8.5 million (the HarvestPlus global households reached projection model is described in the related links - <a href="#">here</a> and <a href="#">here</a> ).	Regular ME data collection, as well as outcome monitoring surveys are planned for 2020-2022; there is however likely to be changes in various plans given the halt in delivery and data collection activities due to the global pandemic. HarvestPlus and partners continue to monitor, evaluate and document these changes in plans.
	Approximately 95,000 farmers treated more than 120,000 hectares with Aflasafe in 2019, allowing production of maize and groundnut with safe aflatoxin levels. These estimates are described in a <a href="#">donor progress report</a> , including quantities of Aflasafe produced during 2019 (Table 1). Those figures were used to calculate the number of farmers (1.3 ha per farmer). Large-scale use of Aflasafe contributed to improved food safety in most of the areas where crops were treated.	At least 155,000 hectares are expected to be treated with Aflasafe by 2020 (if the COVID-19 situation improves). The number of treated hectares by 2021 is expected to be considerably higher. Several 2019 achievements provide evidence that A4NH is positioned to make significant contributions to this 2021 target.
150 million more people, of which 50% are women, without deficiencies of one or more of the following essential micronutrients: iron, zinc, iodine, vitamin A, folate, and vitamin B12	25 million people (5 million farming households were reached with biofortified planting material in 2019, bringing the total number of farming households growing and thought to be consuming (awaiting studies) biofortified crops globally to 8.5 million (42.4 million people, based on the HarvestPlus global households reached projection model described <a href="#">here</a> and reported in the HarvestPlus annual report <a href="#">here</a> ).	HarvestPlus' original targets were to have an estimated 10 million households growing biofortified crops in 2020, and 12 million households growing biofortified crops in 2021 - across HarvestPlus priority countries in 2020. These targets may be revised at the end of the 2019, given the halt in delivery and ME around delivery due to the global pandemic.
10% reduction in women of reproductive age who are consuming less than the adequate number of food groups	No new evidence in 2019.	

**Table 2: Condensed list of policy contributions in 2019 (sphere of influence)**

*Presented chronologically by flagship. For readability, URLs have been embedded as hyperlinks in this table. The information was entered as required in MARLO.*

Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
130 - Government of Ethiopia adopts development of food-based dietary guidelines as a priority, government-led program	Adoption as a "flagship program" requires quarterly progress reports to Parliament, signaling government commitment to providing consumers with advice on dietary patterns that promote health and a healthy food system.	Level 1	<ul style="list-style-type: none"> <li>Enhanced institutional capacity of partner research organizations</li> <li>Optimized consumption of diverse nutrient-rich foods</li> </ul>	1 - Significant	1 - Significant	1 - Significant	1 - Significant	The process is described <a href="#">here</a> . The intent of food-based dietary guidelines (FBDG) is to make available a practical tool that provides recommendations and guidance on types of foods and food groups to be eaten regularly to promote health and prevent chronic diseases. Development of FBDG is an ongoing collaborative effort of A4NH Flagship 1 on Food Systems for Healthier Diets, EPHI, and the Food and Agriculture Organization of the United Nations (FAO).
427 - The Global Panel on Agriculture and Food Systems for Nutrition (GLOPAN) Food Systems and Diets: A Handbook of Essential Policies recommends biofortification as an entry point for delivering healthy diets	Handbook designed to help policymakers, civil organisations, and private sector prepare strategies that will transform food systems in ways that promote healthy diets. Biofortification is highlighted among the entry points.	Level 1	<ul style="list-style-type: none"> <li>Conducive agricultural policy environment</li> </ul>	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	Biofortification is highlighted among the entry points in the <a href="#">handbook</a> ; a section is dedicated to showing evidence, key facts, recommendations, and policy examples. Varieties developed and disseminated by HarvestPlus, other CGIAR Centers, and partners are highlighted along with nutritional efficacy evidence generated by CGIAR and partners.
428 - Biofortification or post-harvest fortification to enhance the nutritional value of food recommended by the World Bank as cost-effective way to reduce	The policy research paper cites evidence from HarvestPlus and others in CGIAR on nutritional efficacy, consumer acceptance, and cost-effectiveness of biofortification as a strategy for reducing malnutrition.	Level 1	<ul style="list-style-type: none"> <li>Conducive agricultural policy environment</li> </ul>	0 - Not Targeted	? - Too early to tell	? - Too early to tell	1 - Significant	The <a href="#">policy research working paper</a> examined a wide range of food and agricultural interventions. Based on evidence from eight countries, the authors state (p.3): "Using biofortification or post-harvest fortification to enhance the nutritional value of food may be the most cost-effective way to reduce widespread malnutrition." Other A4NH evidence on the economics of food safety and

Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
widespread malnutrition in South Asia								nutrition-sensitive agriculture is cited in the review.
429 - World Food Program (WFP) local and regional food procurement policy includes biofortification as a way to promote healthy diets in WFP's country strategic plans	Through HarvestPlus engagement, policy recommends links between procurement and biofortification in value chain strengthening; country programs working on strengthening food systems; and partnerships with other United Nations agencies.	Level 1	<ul style="list-style-type: none"> <li>• Conducive agricultural policy environment</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> </ul>	1 - Significant	0 - Not Targeted	0 - Not Targeted	1 - Significant	This policy is a result of HarvestPlus' engagement with the World Food Program (WFP). The WFP local and regional food procurement policy as presented to the Executive Board is available <a href="#">here</a> . Recommendations are related to value chain strengthening (p.14); country strategy programs working on strengthening food systems (p.16); and partnerships with other United Nations agencies (p.18).
332 - Ghana Standards Authority launched National Aflatoxin Sensitisation and Management initiative	Funded by the Alliance for a Green Revolution in Africa (AGRA), with IITA as a partner, the initiative reflects ongoing public sector support for action on aflatoxin in Ghana.	Level 2	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	<a href="#">OICR3152</a>
333 - Ghana Commodity Exchange rolled out a suite of national aflatoxin mitigation and control strategies, including Aflasafe	These strategies improve access to warehouse facilities, trading, and market data dissemination, and include IITA-led information products to help ensure that farmers can meet Ghana Commodity Exchange quality specifications.	Level 2	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	<a href="#">OICR3152</a>

Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
334 - Ministry of Trade, Industry, and Handicrafts (Burkina Faso), in collaboration with the national umbrella organization of farmers, launches national multi-faceted approach to control aflatoxin in maize, including Aflasafe	With funding from Le Fonds pour l'Application des Normes et le Développement du Commerce (STDF), the approach will raise awareness, build aflatoxin-testing capacity, and promote aflatoxin management techniques, including Aflasafe.	Level 2	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	<a href="#">OICR3152</a>
336 - Commitment from Ministry of Agriculture of Togo to improve the management of aflatoxins and develop an Aflasafe product	An interim committee, chaired by the Ministry of Agriculture, was established to set-up an aflatoxin working group and develop a road map for the development of Aflasafe.	Level 1	<ul style="list-style-type: none"> <li>• Appropriate regulatory environment for food safety</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> <li>• Reduced biological and chemical hazards in the food system</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	The Ministry of Agriculture organized a stakeholder workshop to discuss aflatoxins in the country and to brainstorm a road map to address the problem. The Ministry invited IITA to deliver the keynote presentation on aflatoxins, the science behind Aflasafe, and to advise on best ways to design aflatoxin management strategies. At the end of the meeting, the Representative of the Minister indicated their strong commitment to support the development of biological control for Togo. IITA is providing advice and assistance on management strategies and Aflasafe product development.
337 - Agence Française de Développement announced \$3 million grant for the development of an Aflasafe product for Sudan	This investment funds a 5-year project to develop and commercialize Aflasafe and complements other national public-private efforts where IITA is involved, like the Multi-stakeholder Partnership for Aflatoxin Mitigation in Sudan.	Level 1	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	In late 2019, Samil Industrial Co., in collaboration with IITA, hosted a workshop in Khartoum to inaugurate the Multi-stakeholder Partnership for Aflatoxin Mitigation in Sudan. It is a unique model to have a private sector company leading a national initiative to reduce aflatoxins across Africa. At the workshop, the Economic Representative of the French Embassy reaffirmed the commitment of the French Government to

Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
								contribute to the development of the agricultural sector in Sudan. The workshop and the announcement are described in more detail <a href="#">here</a> .
414 - United States Agency for International Development (USAID) invested \$10 million in a Feed the Future Innovation Lab on food safety	One of the major inputs into the motivation for the Lab and its design was a 2017 white paper authored by an ILRI scientist and A4NH flagship leader.	Level 2	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> <li>• Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research</li> </ul>	1 - Significant	1 - Significant	2 - Principal	1 - Significant	<a href="#">OICR3185</a>
415 - World Organisation for Animal Health (OIE) resolution on how external factors will impact veterinary services and the adaptations required	ILRI researchers wrote a technical item and helped to draft the resolution describing the impacts external factors such as climate change, conflicts, socioeconomics, and trading patterns have on veterinary services.	Level 1	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> <li>• Appropriate regulatory environment for food safety</li> </ul>	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	A <a href="#">technical item</a> was prepared by A4NH researchers from ILRI for OIE and they also helped to draft the <a href="#">resolution</a> .
416 - Inclusion of the Africa Food Safety Index (AFSI) in the second Comprehensive Africa Agriculture Development Programme (CAADP) Biennial Review process	The Biennial Review is an instrument for triggering policy actions for agricultural transformation. Inclusion of the Africa Food Safety Index will strengthen preparedness, functionality, and	Level 2	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Increase capacity of beneficiaries to adopt research outputs</li> <li>• Appropriate regulatory</li> </ul>	1 - Significant	1 - Significant	1 - Significant	0 - Not Targeted	<a href="#">OICR3268</a>



Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
	performance of food safety systems.		environment for food safety					
421 - India's Integrated Child Development Services makes the Supplementary Nutrition Program (SNP) a stated priority for the National Nutrition Mission	Evidence on nutritional composition of food provided under this national program suggested caloric, protein, and iron requirements differed from global recommendations. The Mission will reexamine guidelines and models for provision.	Level 1	<ul style="list-style-type: none"> <li>Increased access to diverse nutrient-rich foods</li> </ul>	0 - Not Targeted	0 - Not Targeted	1 - Significant	0 - Not Targeted	IFPRI researchers have hosted multiple convenings for stakeholders to review the available evidence on food supplementation interventions under India's Integrated Child Development Services (ICDS) scheme, the largest program for promotion of maternal and child health and nutrition in the world. As an outcome of these engagements, the issue of food supplementation and the nutritional composition of food provided under the program was added to the meeting agenda of the National Technical Board for Nutrition. This has become a stated priority for the National Nutrition Mission to tackle in 2020. Supporting correspondence can be provided.
423 - Recommendations for a collaborative multi-stakeholder initiative for tackling malnutrition in India	Co-created a common renewed nutrition vision for tackling malnutrition in India, in line with the National Nutrition Strategy, along with NITI Aayog and other key stakeholders	Level 1	<ul style="list-style-type: none"> <li>Optimized consumption of diverse nutrient-rich foods</li> </ul>	1 - Significant	1 - Significant	1 - Significant	0 - Not Targeted	IFPRI researchers convened a workshop with NITI Aayog and approximately 50 key nutrition stakeholders. NITI Aayog is a policy think tank of the Government of India, established with the aim to achieve sustainable development goals by fostering the involvement of State Governments of India in the economic policy-making process. The group aligned perspectives and co-created a renewed nutrition vision, in line with the National Nutrition Strategy, for tackling malnutrition in India. Specific recommendations in the four areas of childhood undernutrition, maternal nutrition, non-communicable diseases and micronutrient deficiencies were further discussed by policymakers. Supporting correspondence can be provided.

Title	Description	Level of Maturity	Link to sub-IDOs	CGIAR cross-cutting marker				Description of evidence and/or links
				Gender	Youth	Capdev	Climate Change	
438 - Committee on World Food Security Voluntary Guidelines for Food Systems and Nutrition	The guidelines provide guidance, mainly to governments, on effective policies, investments and institutional arrangements that address malnutrition in all its forms.	Level 1	<ul style="list-style-type: none"> <li>• Conducive agricultural policy environment</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> </ul>	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	Through A4NH, CGIAR is recognized as a member of the Committee on World Food Security (CFS) Open-Ended Working Group on Nutrition (OEWG). It is the only research system to be recognized as a member. In 2019, <a href="#">A4NH convened CGIAR</a> in the Voluntary Guidelines consultative process. The end result in 2019 was what is known as the <a href="#">Zero Draft</a> , the first major milestone towards the final Guidelines.
504 - Federal Ministry of Economic Cooperation and Development (BMZ) invested \$8 million in new One Health Research, Education and Outreach Centre for Africa	A4NH researchers stimulated this investment. The new centre's initiatives will focus on reducing incidences of zoonotic diseases; food-borne diseases; and antimicrobial resistance and leverage other German investments in CGIAR.	Level 1	<ul style="list-style-type: none"> <li>• Enhanced individual capacity in partner research organizations through training and exchange</li> <li>• Reduced livestock and fish disease risks associated with intensification and climate change</li> <li>• Reduced biological and chemical hazards in the food system</li> </ul>	1 - Significant	0 - Not Targeted	1 - Significant	1 - Significant	BMZ has funded several large-scale projects led by ILRI that apply One Health approaches. With the new <a href="#">One Health Research, Education and Outreach Centre for Africa</a> (OHRECA), BMZ and ILRI will bring together One Health experts to help develop greater capacity, support One Health initiatives, and refine pathways leading from evidence to policy and practice in Africa.

**Table 3: List of Outcome/Impact Case Reports from 2019 (sphere of influence)**

*Presented chronologically by flagship.*

Title of Outcome/ Impact Case Report (OICR)	Link to full OICR	Maturity level	Status
OICR3300 - Public and private sector partners increasingly incorporate agrobiodiversity within a food systems perspective in their work	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3293 - Innovative Delivery Models for Iron Beans Resulted in Adoption by an Estimated 442,000 Households in Rwanda	<a href="#">Link</a>	Level 2	New Outcome/Impact Case
OICR2782 - Aflasafe biocontrol products to reduce aflatoxin contamination are now registered in nine African countries and available at more than 30 distribution points in seven countries	<a href="#">Link</a>	Level 1	Updated Outcome/Impact case at same level of maturity
OICR3150 - A to Z Textile Mills Ltd., invests in manufacturing and distributing Aflasafe biocontrol products in Tanzania	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3152 - Public and private sector help scale Aflasafe and increase awareness and capacity to mitigate aflatoxin in Burkina Faso and Ghana	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3184 - Maize millers in Kenya adopt a quality control approach to testing maize for aflatoxins ensuring safer maize is available for 10 million Kenyan consumers	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3185 - United States Agency for International Development (USAID) invested \$10 million in its first ever Feed the Future Innovation Lab on food safety	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3268 - Africa Food Safety Index incorporated into the African Union Commission's Biennial Review of the implementation of Comprehensive Africa Agriculture Development Programme and the Malabo Declaration	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3351 - Private sector partnership increased adoption of Aflasafe, reducing aflatoxin accumulation and improving net incomes for smallholders in Nigeria	<a href="#">Link</a>	Level 2	New Outcome/Impact Case
OICR3207 - A4NH study challenged thinking around the global focus on lowering the prevalence of stunting, successfully encouraging donors to reconsider their approach to solving nutrition challenges	<a href="#">Link</a>	Level 1	New Outcome/Impact Case
OICR3287 - More than 12,000 farmers in Kenya provided access to zoonotic disease information through mobile phones	<a href="#">Link</a>	Level 1	New Outcome/Impact Case

**Table 4: Condensed list of innovations by stage for 2019**

*Presented chronologically by flagship.*

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope
<a href="#">354 - Agrobiodiversity Index, tool to measure agrobiodiversity and identify concrete actions to achieve diverse and sustainable food systems</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">370 - Methodology to analyse national food systems based on secondary reports and data</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Multi-national, Bangladesh, Ethiopia, Vietnam
<a href="#">380 - New policy baseline assessment methodology to conduct food policy analysis</a>	Social Science	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Bangladesh, Ethiopia, Nigeria, Vietnam
<a href="#">1264 - Conceptual framework to identify and analyze food system innovations that can lead to improvements in the choices available to consumers and their diets</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">1268 - Food Based Dietary Guidelines: Dietary recommendations for Ethiopians for increased diet quality, including diversity and food safety for optimal health</a>	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Ethiopia
<a href="#">1331 - Underutilised food species database with nutrition data, common and local names, medicinal uses and links to recipes</a>	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV)	Multi-national, Brazil, Turkey, Sri Lanka, Kenya
<a href="#">1332 - Participatory community-based farm diversification and nutrition education approach to increase farm, market and dietary diversity in Kenya</a>	Social Science	Stage 2: successful piloting (PIL - end of piloting phase)	National, Kenya
<a href="#">1367 - Muracho: a new biofortified vitamin A banana/plantain variety in Burundi</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Burundi
<a href="#">1368 - Muracho: a new biofortified vitamin A banana/plantain variety in Democratic Republic of the Congo</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Democratic Republic of the Congo
<a href="#">1369 - Pisang Papan: a new variety of biofortified vitamin A banana/plantain in Democratic Republic of the Congo</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Democratic Republic of the Congo

<b>Title of innovation with link</b>	<b>Innovation Type</b>	<b>Stage of innovation</b>	<b>Geographic scope</b>
<a href="#">1370 - BIO-102: a new variety of biofortified iron beans in Colombia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Colombia
<a href="#">1372 - Jasmine (SMC16): a new variety of biofortified iron beans in Zimbabwe</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zimbabwe
<a href="#">1373 - INTA Rojo Bio-Apante: a new variety of biofortified iron bean in Nicaragua</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Nicaragua
<a href="#">1374 - I070593: a new biofortified vitamin A cassava variety in Cameroon</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Cameroon
<a href="#">1376 - TMS 09/0090: a new variety of biofortified vitamin A cassava in Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1377 - TMS 07/0557: a new biofortified vitamin A cassava variety in Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1378 - TMS 08/3774: a new biofortified vitamin A cassava variety for Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1379 - TMS 09/0151: a new biofortified vitamin A cassava variety in Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1380 - Pant Lobia-7: a new biofortified iron cowpea variety in India</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, India
<a href="#">1381 - CRI-Nkwagye: a new maize biofortified vitamin A variety for Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1382 - CRI-Abebe: a new vitamin A biofortified maize variety in Ghana</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Ghana
<a href="#">1383 - GV6023A: a new vitamin A biofortified maize variety in Zambia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zambia
<a href="#">1384 - GV6029A: a new vitamin A biofortified maize variety in Zambia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zambia
<a href="#">1385 - GV6027A: a new vitamin A biofortified maize variety in Zambia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zambia
<a href="#">1386 - GV6017A: a new vitamin A biofortified maize variety in Zambia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zambia

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope
<a href="#">1387 - GV6025A: a new vitamin A biofortified maize variety in Zambia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zambia
<a href="#">1388 - ZS500: a new vitamin A biofortified maize variety in Zimbabwe</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Zimbabwe
<a href="#">1389 - SGBIOH2: a new biofortified zinc maize variety in Colombia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Colombia
<a href="#">1390 - Moti Shakti (GHB 1225): a new biofortified iron pearl millet variety in India</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, India
<a href="#">1391 - CIAT BIO-44 +Zinc: a new biofortified zinc rice variety released in Bolivia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Bolivia
<a href="#">1392 - CENTA A-Nutremas: a new biofortified zinc rice variety released in El Salvador</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, El Salvador
<a href="#">1393 - Agrosavia Aurora: a new vitamin A sweet potato variety released in Colombia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Colombia
<a href="#">1394 - INIAF Okinawa: a new biofortified zinc wheat variety released in Bolivia</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, Bolivia
<a href="#">1395 - HUW 711 (Mayil #4): a new biofortified zinc wheat variety released in India</a>	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV)	National, India
<a href="#">1447 - Iron bean delivery program in Rwanda</a>	Other	Stage 4: uptake by next user (USE)	National, Rwanda
<a href="#">1472 - Biofortification Priority Index (BPI), a composite crop-specific index that ranks countries according to their suitability for investment in biofortification</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">152 - Aflasafe KE01 for Kenya</a>	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Kenya
<a href="#">175 - Multi-sectoral taskforce model on food safety</a>	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Cambodia



<b>Title of innovation with link</b>	<b>Innovation Type</b>	<b>Stage of innovation</b>	<b>Geographic scope</b>
<a href="#">719 - Aflasafe MWMZ01 and Aflasafe MZ02 for Mozambique</a>	Production systems and Management practices	Stage 3: available/ ready for uptake (AV)	National, Mozambique
<a href="#">729 - Aflasafe BF01 for Burkina Faso</a>	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Burkina Faso
<a href="#">730 - Aflasafe GH01 and Aflasafe GH02 for Ghana</a>	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Ghana
<a href="#">733 - Aflasafe TZ01 and Aflasafe TZ02 for Tanzania</a>	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Tanzania
<a href="#">735 - Aflasafe MWMZ01 and Aflasafe MW02 for Malawi</a>	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	National, Malawi
<a href="#">1119 - Aflasafe RW01 for Rwanda</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Rwanda
<a href="#">1120 - Aflasafe product for Mali</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Mali
<a href="#">1121 - Dry inoculum (active ingredient in Aflasafe): reduces manufacturing costs for Aflasafe and addresses barrier to commercialization</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Regional, Sub-Saharan Africa
<a href="#">1122 - Field-based aflatoxin sampling and testing protocol</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Regional, Sub-Saharan Africa
<a href="#">1295 - Approach to encourage market actors to invest in food safety by stimulating consumer demand for safer maize flour in Kenya</a>	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Kenya
<a href="#">1337 - Farmer training on aflatoxin prevention using low-cost, locally available materials, combined with market incentives for safer food</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Sub-national, Kenya
<a href="#">1338 - Food safety risk analysis frameworks adapted for use in informal value chains in low-and middle-income countries</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">1339 - Risk assessment for food transmitted disease in informal markets in and low-and middle-income countries</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope
<a href="#">1340 - Addition of mycotoxin binders to animal feeds to reduce aflatoxin concentration in cow milk: adaptation to smallholder dairy systems in low- and middle-income countries</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Sub-national, Kenya
<a href="#">1341 - Participatory mapping of foodscapes in informal settlements in urban areas of Kenya</a>	Social Science	Stage 2: successful piloting (PIL - end of piloting phase)	National, Kenya
<a href="#">1344 - Power through: A new concept in the empowerment discourse</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">1435 - Quality control approach for testing maize for aflatoxin combined with commercial labeling of maize meal products as aflatoxin-safe</a>	Social Science	Stage 4: uptake by next user (USE)	National, Kenya
<a href="#">1479 - "Three-legged stool" approach, a combined intervention to improve food safety in informal or traditional markets</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Multi-national, Ethiopia, Burkina Faso, Uganda, Kenya
<a href="#">1480 - Africa Food Safety Index (AFSI), tool for African countries to measure, monitor, and benchmark progress on key food safety indicators</a>	Social Science	Stage 4: uptake by next user (USE)	Regional, Sub-Saharan Africa, Northern Africa
<a href="#">161 - District nutrition profiles, a compiled set of indicators that can be used to dialogue with stakeholders about where to focus efforts on addressing undernutrition</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Sub-national, India
<a href="#">263 - Demonstrated cost-effectiveness of food-assisted maternal and child health and nutrition program on maternal and child nutritional outcomes in Guatemala and Burundi</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Multi-national, Burundi, Guatemala
<a href="#">625 - m-Health application, a mobile/web-based application making real-time information on service delivery and beneficiary nutrition status available to community-based health workers</a>	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Sub-national, India
<a href="#">627 - Protocol for developing sub-national nutrition scorecards, a tool to advance accountability for nutrition</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Sub-national, Tanzania
<a href="#">630 - Suite of resources for implementers on how to mainstream nutrition behavior change communication into agricultural projects in Uganda</a>	Social Science	Stage 3: available/ ready for uptake (AV)	National, Uganda

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope
<a href="#">631 - Relevance of child stunting as an outcome of interest in programs targeting undernutrition</a>	Social Science	Stage 4: uptake by next user (USE)	Global
<a href="#">633 - Methods for measuring the cost of the most affordable nutritionally adequate diet in a country</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">642 - Framework on how to leverage neglected and underutilized species (NUS) to improve nutrition</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Global
<a href="#">1364 - Nutrition training roadmap for administrators across India</a>	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	National, India
<a href="#">1375 - First experimental evidence that increasing women's empowerment through a nutrition- and gender-sensitive agriculture program improves child nutrition in Burkina Faso</a>	Social Science	Stage 3: available/ ready for uptake (AV)	National, Burkina Faso
<a href="#">1477 - Suite of tools to help policymakers/stakeholders in West Africa to identify gaps in their national data systems to effectively track progress on nutrition and/or inform policy</a>	Social Science	Stage 3: available/ ready for uptake (AV)	Regional, Western Africa
<a href="#">1349 - Stepwise approach for formulating country-level target goals for elimination of taenia solium taeniosis/cysticercosis (one of the top ranked foodborne parasitic hazards globally)</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
<a href="#">1350 - Mobile-phone application with zoonotic disease information for smallholder farmers in East Africa</a>	Research and Communication Methodologies and Tools	Stage 4: uptake by next user (USE)	Regional, Eastern Africa
<a href="#">1351 - Integrated (human health and animal health) surveillance and reporting system for 15 zoonotic diseases in Kenya</a>	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	Sub-national, Kenya
<a href="#">1352 - Fluorescence Polarization Assay (FPA): rapid diagnostic field test for brucellosis in ruminants in low-resource settings and tropic conditions like Cote d'Ivoire</a>	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	National, Côte d'Ivoire

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope
<a href="#">1476 - Modification of alternate wetting and drying (AWD), a proven irrigation strategy for rice production, to reduce the production of mosquitoes that transmit malaria</a>	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Multi-national, Côte d'Ivoire, Kenya
<a href="#">1500 - Aerosol sampling in wet (informal) markets in Vietnam as an early warning screening for avian influenza viruses in poultry</a>	Biophysical Research	Stage 2: successful piloting (PIL - end of piloting phase)	Sub-national, Vietnam

**Table 5: Summary of status of planned outcomes and milestones (sphere of influence-control)**

*For readability, URLs have been embedded as hyperlinks in this table. The information was entered as required in MARLO.*

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
F1 Outcome: Partners and other CRPs incorporate nutrition, health and gender in agri-food value chains and food systems programs	<ul style="list-style-type: none"> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Increased capacity for innovations in partner research organizations</li> </ul>	In 2019, we finalized methods and tools that can be used for: benchmarks and guidelines for healthy diets at individual and household level in our four focus countries; characterizing diet-food system linkages; assessing and visualizing food system sustainability; understanding food system drivers; and measuring the current state of food systems and their direction through a common set of indicators. All focus country food system papers were finalized and being used by several organizations to develop future strategies, through dietary gap and determinants analysis; characterize sub-national food systems; and further analyze the food environment. The A4NH-CGIAR consultations leveraged food systems thinking.	2019 - Validated metrics and tools for assessing diet quality and characterizing food systems applied by 10 research organizations (partner and external organizations) across the 4 focus countries	Extended	Food-based dietary guidelines in Ethiopia disseminated (e.g. at ag2nut webinar, in voices from the field) and adopted as a flagship project by Government. Common set of indicators have started to be used by other organizations, such as the World Bank. Food systems papers (Bangladesh, Vietnam, Vietnam subnational) were disseminated.	<a href="#">Second National Workshop on Development of Ethiopian Food-Based Dietary Guidelines</a> and <a href="#">Developing Food-Based Dietary Guidelines for Ethiopia</a>  <a href="#">Common set of indicators</a>  <a href="#">Bangladesh food systems</a> ; and <a href="#">Vietnam food systems</a> and <a href="#">subnational food systems</a>
			2019 - Leverage points for improving diet quality and food system linkages, identified from 2017-18 food systems analyses and consultations, are used by focus country teams to identify gender sensitive interventions in Bangladesh, Ethiopia, Nigeria, and Viet Nam	Extended	Foresight analysis ready for use in Nigeria; participatory scenario analysis planned in Nigeria but postponed. Overall foresight paper drafted but not yet published.	<a href="#">Healthy Diets and Reduced Land Pressure: Towards a Double Gain for Future Food Systems in Nigeria</a>
			2019 - Portfolio of methods and tools for food systems-diets diagnosis, foresight, and scenario analysis is available for use by	Complete	Metrics paper published as discussion paper; assessment and visualization on food system sustainability published. Compendium of indicators finalized and about to be published. Review diet quality paper	<a href="#">Improving diets through food systems in low- and middle-income countries: Metrics for analysis</a>

<sup>1</sup> To access documents in A4NH's internal repository, please send a request to [a.wyatt@cgiar.org](mailto:a.wyatt@cgiar.org).

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
			researchers from relevant CRPs and (local) research institutes		published; methodology for WISH dietary index developed. Food Environment Expert Consultation held to identify metrics and tools for assessment of food environment.	<a href="#">Food Sustainability for Countries Across the Globe</a>
F1 Outcome: Partners, including value chain actors, use evidence from impact evaluations when making operational and investment decisions	<ul style="list-style-type: none"> <li>• Increased availability of diverse nutrient-rich foods</li> <li>• Increased access to diverse nutrient-rich foods</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> </ul>	We developed a multidisciplinary framework to identify and analyze food system innovations and possible entry points for the design of potential innovations. These innovations should attempt to influence food system dynamics, especially in the area of consumer behavior, food environment and value chains. With partners, we designed consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods such as fruits and vegetables, poultry, and fish in the four focus countries. Once evaluated, they will provide empirical evidence on how food system innovations could transform existing food systems to lever important outcomes related to diet, sustainability and equity.	2019 - Partners in the four focus countries, including value chain actors, are aware and have improved understanding of linkages between diets and value chain interventions in food system context, based on evidence provided.	Complete	The multidisciplinary framework on food system innovations. Example of use of food system lens in value chain work. Partners included in the various food systems innovations: in Ethiopia (NEEP); in Bangladesh (Partex); in Nigeria: (University of Ibadan); in Vietnam (Ministry of Education Dong Anh District, Hanoi Medical University, Rikolto).	<a href="#">Multidisciplinary framework</a> <a href="#">Food systems lens in value chains</a> <a href="#">Example from Bangladesh</a>
F1 Outcome: Public-private partnerships formed to promote implementation of A4NH strategies for agri-food value chain/food system innovations	<ul style="list-style-type: none"> <li>• Increased availability of diverse nutrient-rich foods</li> <li>• Increased access to diverse nutrient-rich foods</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> <li>• CC Improved capacity of women and young people to participate in decision-making</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> </ul>	The first strategic step - an internal discussion paper prepared by the Global Alliance for Improved Nutrition (GAIN) included a SWOT analysis and recommendations for systematic approaches to engaging the private sector as a flagship and within focus countries. Consequently, A4NH adjusted its collaboration with GAIN to work with country teams, like GAIN-Bangladesh alongside the Scaling up Nutrition Business Network Platform. Public-private partnerships in other countries are ongoing on a smaller scale with: UNILEVER on sustainable nutrition (Vietnam); Friesland Campina on fortification of milk products; a local broadcasting company (Ethiopia); and informal fruit and vegetable market retailers (Vietnam, Nigeria).	<p>2019 - Systematic approach to be used to engage private sector stakeholders in FSHD focus countries</p> <p>2019 - Guidance note on areas of focus for businesses to promote food systems for healthier diets (based on FP1 analyses) published online and disseminated in workshops with private sector partners in 2 of the 4 focus countries.</p>	<p>Changed</p> <p>Cancelled</p>	<p>The Global Alliance for Improved Nutrition (GAIN) completed an internal strategic planning paper, which included recommendations for systematic approaches to engaging the private sector. In response, we decided that it was inappropriate to implement a full strategic road map or systematic approach for the flagship or in the focus countries.</p> <p>We decided that the development of a guidance note on areas of focus was not appropriate. Instead, we will develop a guidance note later based on the A4NH experiences in public-private collaborations around food system transformations.</p>	



Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
F1 Outcome: Key partners, stakeholders, and institutions (including national and local policy makers, private sector, consumer organizations, and other CRPs) are effectively implementing the evidence and lessons learned at scale in their food system related strategies and policy agenda	<ul style="list-style-type: none"> <li>• CC Improved capacity of women and young people to participate in decision-making</li> <li>• CC Conducive agricultural policy environment</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> <li>• CC Increased capacity for innovations in partner research organizations</li> </ul>	Information on dietary gaps and trends were widely disseminated through (inter)national seminars and conferences and in-country stakeholder workshops. Information on dietary gaps will be included in the country briefs. The food systems narratives paper was highly appreciated by partners. This paper did not include the view of the private sector; a first attempt to address this was done in Vietnam. Policy baselines studies contributed to understanding around food systems and sustainability. Key platforms were identified; collaborative activities started in Vietnam and in Bangladesh via membership in key technical working groups and the Scaling Up Nutrition Civil and Business Networks.	2019 - 8 stakeholders in relevant policy processes across the 4 focus countries are made aware of A4NH evidence on dietary trends.	Complete	Data on dietary gaps and dietary trends were presented and discussed with partners relevant for policy development: in Ethiopia (Ethiopian Public Health Institute, Alive & Thrive, Addis Ababa University), in Vietnam (National Institute for Nutrition, UNICEF, World Bank, Scaling Up Nutrition, civil society alliances, NGOs, government in Vietnam; in Nigeria (University of Ibadan); and in Bangladesh (ICDDR'B)	<a href="#">Progress with Ethiopian Public Health Institute</a> <a href="#">Stakeholder engagement in Vietnam</a>
			2019 - Food system policies and narratives/discourses thoroughly analyzed in at least 2 focus countries, contributing to an improved understanding of the current research agenda on food systems	Extended	Analysis of current narratives on food systems and sustainability was published. Further research on private sector narratives in Vietnam is ongoing. Progress was made on the national food system policy baseline assessments: Vietnam (completed and Ministry of Agriculture and Rural Development added it to their library); Nigeria (completed); Bangladesh (validated); Ethiopia (ongoing). <i>Update from June 2020: This is ready for Vietnam and Bangladesh, but not yet for Nigeria (report is being finalised now) and Ethiopia (study is delayed due to Covid-19).</i>	<a href="#">Current narratives paper</a> <a href="#">Policy analysis, Vietnam</a>
			2019 - 10 stakeholders engage in participatory scenario analysis in at least 2 focus countries	Extended	A4NH researchers developed a methodology for participatory scenario analysis related to food systems. The methodology was tested during a 3-week training course on food systems. Training sessions for Bangladesh and Nigeria on how to use the methodology were not scheduled in 2019 but will be conducted in 2020. <i>Update from June 2020: Change of positions delayed the finalisation of the food system analysis paper (necessary to continue participatory scenario analysis); new partner (IFPRI) was introduced and developed a proposal for the participatory scenario session, but circumstances beyond</i>	

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
					<i>control did prevent the session to take place at the end of 2019. Was postponed to early 2020 but got delayed again due to COVID-19.</i>	
			2019 - Strategy to strengthen and develop effective healthy diets platform developed for at least 2 countries	Complete	In 2018, multi-stakeholder platforms for healthier diets had been identified in <a href="#">Bangladesh</a> and Nigeria. By early 2019, it was completed in the <a href="#">other two focus countries</a> . Using network analysis and group discussions, researchers identified similarities and differences between platforms within and across the countries. Findings provided basis for another 2019 milestone.	<a href="#">Bangladesh, platforms for healthier diets</a> <a href="#">Ethiopia and Vietnam, platforms for healthier diets</a>
			2019 - Key platforms for Healthier Diets identified, and collaborative activities started in at least 2 of the 4 focus countries	Complete	The other milestone provides evidence that key platforms were identified. In 2019, we started collaborative activities in Bangladesh with the Scaling Up Nutrition (SUN) Business Network and in Vietnam with the SUN Civil Society Network and various technical working groups linked with the Regional Initiative on Zero Hunger. <i>Update from June 2020: the identification of relevant multi-stakeholders' platforms for healthier diets has been finalised in 2019 in the four countries, and as part of this identification, capacity building workshop were organised in the four countries. This work led to selection of two relevant platforms in Ethiopia (through the Seqota declaration network) and Bangladesh (SUN Business Alliance platform), that will be involved in further capacity development activities in 2020.</i>	<a href="#">SUN Business Network workshop</a>
F2 Outcome: High-yielding micronutrient enhanced varieties	<ul style="list-style-type: none"> <li>Increased availability of diverse nutrient-rich foods</li> </ul>	In 2019, a variety of iron beans (BIO-102) released in Colombia; varieties of vitamin A maize (GV6023A, GV6029A, GV6027A, GV6017A, GV6025A) released in Zambia; a variety of vitamin A maize (ZS500) released in	2019 - Three HarvestPlus Phase 1 ('target') countries release third-wave of at least five tier 1 crop varieties	Complete	Target was exceeded. In 2019, varieties released included: iron beans (one) in Colombia; vitamin A maize (five) in Zambia; vitamin A maize (one) in Zimbabwe; iron	<a href="#">Details on varieties released (internal documents)</a>

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
developed and released in priority countries		Zimbabwe; a variety of iron pearl millet (Moti Shakti), and zinc wheat (HUW 711) released in India.			pearl millet (one) and zinc wheat (two) in India.	
F2 Outcome: Biofortification mainstreamed into CGIAR and NARS breeding efforts	<ul style="list-style-type: none"> <li>• CC Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> </ul>	Budget was allocated for monitoring mainstreaming in CGIAR Centers and national agricultural research systems; initial contacts with selected CGIAR Centers and Excellence in Breeding Platform were established. Meetings were planned to develop indicators jointly. HarvestPlus defined a clear approach to enhancing mainstreaming; we are in the process of establishing a monitoring system to track the progress of other centers. Early generation seed production is part of breeding contracts and harmonized with seed systems strengthening capacity building and delivery activities/efforts. Resource mobilization for specific crops is at various stages.	2019 - 3 crop breeding programs establish/review mainstreaming targets and plans for each target crop/agroecology	Complete	HarvestPlus defined a clear approach to enhancing mainstreaming; we are in the process of establishing a monitoring system to track the progress of other centers. This 2019 milestone refers to zinc wheat, rice, iron pearl millet, and iron beans. Details included in the narrative on progress against the outcome.	<a href="#">Internal document on mainstreaming progress</a>
			2019 - Biofortification projects (target TBD) within CGIAR breeding centers are linked with CGIAR seed system capacity strengthening efforts	Complete	Meetings were planned to develop indicators jointly. Early generation seed production is part of breeding contracts and is harmonized with seed systems strengthening and capacity building along with the delivery activities/efforts.	
			2019 - 2.5% annual increase in mainstreaming as a percentage of total CGIAR Center efforts for target crop/agroecology	Cancelled	HarvestPlus defined a clear approach to enhancing mainstreaming and is in the process of establishing a monitoring system to track the progress of other centers. We cannot yet report % increase in mainstreaming, so we are cancelling this milestone (delayed from 2018). A relevant milestone for 2020 will be reported.	
F2 Outcome: High-yielding micronutrient enhanced varieties delivered at scale in priority countries	<ul style="list-style-type: none"> <li>• Closed yield gaps through improved agronomic and animal husbandry practices</li> <li>• Increased availability of diverse nutrient-rich foods</li> </ul>	Milestones for this outcome demonstrate that A4NH is making progress in increasing the availability of diverse nutrient-rich foods. By the end of 2019, an estimated 8.5 million households (corresponding to 42.4 household members) were growing and consuming biofortified varieties of major staples (vitamin A cassava, maize and sweet potato; iron beans and pearl millet and zinc maize, rice and wheat).	2019 - 9 million households in HarvestPlus priority countries growing and consuming biofortified crops	Changed	In 2019, 5 million farming households were reached with biofortified planting material, bringing the total number of farming households growing and consuming biofortified crops globally to 8.5 million. The data is available in the HarvestPlus monitoring and evaluation database, the detailed explanations on reasons of the status, "changed" and the methodology is available upon request.	
F2 Outcome: Evidence on nutritional	<ul style="list-style-type: none"> <li>• Increased access to diverse nutrient-rich foods</li> </ul>	Socioeconomic endline study (both quantitative and qualitative, gender-sensitive components) was completed at the end of 2018, in 2019 data	2019 - 3 gender- and equity-sensitive delivery strategies, tested/piloted by HarvestPlus	Complete	Qualitative gendered analysis of delivery strategies completed for Colombia, Rwanda and Zambia. Results from Rwanda and	<a href="#">2019 Annual Trends and Outlook Report</a>

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
efficacy and impact informs value chain actors, as well as national and international investors	<ul style="list-style-type: none"> <li>• CC Improved capacity of women and young people to participate in decision-making</li> <li>• CC Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research</li> </ul>	were analyzed, and the preliminary results were shared with the national partners. Nutrition endline study is in progress, and all final results will be shared with the national partners in 2020. Qualitative gendered analyses of delivery models were completed for Colombia, Rwanda, and Zambia. Results of the Rwanda and Zambia analyses are included as a case study in the 2019 Annual Trends and Outlook Report (ATOR) of the Regional Strategic Analysis and Knowledge Support System.	and partners, informed by published evidence on efficacy, adoption and monitoring studies on biofortification		Zambia were included as a case study “Developing Gender-Inclusive Products and Programs: The Role of Gender in Adoption and Consumption of Biofortified Crops” in the 2019 Annual Trends and Outlook Report for Africa.	
			2019 - 2 decisionmaking tools, incorporating evidence from gender-sensitive iron beans effectiveness study in Guatemala, shared with Government of Guatemala (and others in the region) to help them develop and implement national biofortification programs	Extended	Socioeconomic endline study (both quantitative and qualitative, gender-sensitive components) was completed at the end of 2018, in 2019 data were analyzed, and the preliminary results were shared with the national partners. Nutrition endline study is in progress, and all final results will be shared with the national partners in 2020.	
F2 Outcome: Biofortification supported by global institutions and incorporated into plans and policies by stakeholders	Conducive agricultural policy environment	We expect the World Health Organization (WHO) to issue a recommendation in 2020 on biofortification as a mainstream public health nutrition intervention. In addition, a draft definition was referred to the 2019 Session of the Codex Committee on Food Labelling (CCFL) to determine if it will meet their needs. The CCFL agreed current labeling texts were adequate; there was no need for a definition of biofortification in context of food labeling. HarvestPlus is no longer pursuing a standalone definition. Instead, we are working with the International Standards Organization and creating international nutrient standards for biofortified grains through a separate process.	2019 - Standards for biofortified foods approved by Codex Alimentarius	Changed	Efforts to have biofortification included in the Codex Alimentarius standards continued. HarvestPlus strategically decided not to pursue a standalone definition but rather have biofortification included under existing definitions. HarvestPlus prioritized working with the International Standards Organization and creating international nutrient standards for biofortified grains through the Publicly Available Standards process.	<a href="#">Internal documents related to international standards</a>
			2019 - Biofortification included in World Health Organization (WHO) guidelines on micronutrient deficiencies	Extended	HarvestPlus continued communicating with the World Health Organization (WHO) and the United Nations Food and Agriculture Organization (FAO) on the latest evidence. A HarvestPlus-FAO biofortification brief was published. WHO plans issuing a recommendation in 2020 on biofortification as a mainstream public health nutrition intervention; guidelines expected to follow by 2021.	<a href="#">Biofortification: A food systems solution to help end hidden hunger</a>
F3 Outcome: Key food safety	• Reduced market barriers	In 2019, three major international meetings all acknowledged the importance of food safety	2019 - National partners in Cambodia and Viet Nam build	Complete	Policy makers and partners in Cambodia and Vietnam who are part of a taskforce on food	<a href="#">Launch in Cambodia</a>

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evidence users (donors, academics, INGOs, national policymakers, civil society, and industry) are aware of and use evidence in the support, formulation and/or implementation of pro-poor and risk-based food safety approaches	<ul style="list-style-type: none"> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• CC Gender-equitable control of productive assets and resources</li> <li>• CC Increase capacity of beneficiaries to adopt research outputs</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> </ul>	and we presented and helped draft policy statements for all three. We also co-authored two major policy documents on food safety with the World Bank and Global Food Safety Partnership, emphasising informal markets. We produced a large number of papers, briefs, presentations, reports and videos, making stakeholders aware of our pro-poor risk-based approaches	capacity and use tools from A4NH to implement gender-sensitive risk-based approaches in managing food safety		safety received training on food safety risk assessment and discussed food safety priorities and solutions based on research project findings. Their capacity has been improved in risk-based approach in managing food safety and intervention.	<a href="#">Experience in Vietnam</a>
			2019 - A4NH evidence, including gender relevant information, presented at WHO-FAO-AU-IBAR's first international conference on food safety in Addis Ababa	Complete	ILRI and IFRPI researchers helped organize and participate at the conference including important plenary presentations and helped draft the policy statement developed by the conference. They also attended a follow up conference with WTO in Geneva.	<a href="#">Conference background documents</a> <a href="#">The Future of Food Safety</a>
			2019 - Synthesis of evidence on promising technologies and market mechanisms for aflatoxin control presented to policy stakeholders in at least 2 countries (Ghana and Kenya)	Complete	A workshop was held at ILRI Kenya organized by IFPRI and it was attended by important stakeholders from Kenya and stakeholders from Ghana joined virtually. IFPRI and ILRI researchers presented evidence on aflatoxin control and discussed with stakeholders.	<a href="#">Synthesis of emerging evidence from Ghana</a> <a href="#">Webinar workshop recording and materials</a>
F3 Outcome: Market-based food safety innovations delivered at scale in key countries along with understanding of their impact and appropriate use	<ul style="list-style-type: none"> <li>• Reduced market barriers</li> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• CC Gender-equitable control of productive assets and resources</li> <li>• CC Increase capacity of beneficiaries to adopt research outputs</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> </ul>	Six new food safety projects in Ethiopia (3), Kenya, Burkina Faso and Uganda are using tools for risk assessment and management developed under A4NH. All have potential to improve food safety at scale. ILRI leads two and is a partner in another. This is in addition to ongoing projects in Cambodia, Kenya and India aiming to reach consumers at scale. The projects all focus on informal markets but use different methods for incentivising and sustaining change, reflecting the “three-legged stool” approach. New research collaborations for wider impact were also established in 2019.	2019 - Food Safety Index for multiple countries in Africa launched by AU-IBAR with technical inputs from A4NH	Complete	The index was developed by a multidisciplinary team of experts led by Partnership for Aflatoxin Control in Africa (PACA), in consultation with ILRI scientists, with support from A4NH, and validated by African Union (AU) country member states. ILRI supported training and is helping validate data.	<a href="#">Press release</a>
			2019 - Traders and policy/regulators in at least two types of value chains (dairy, fish, produce) in at least Kenya, India, Viet Nam, Cambodia, plus more are made aware of gender-sensitive guidelines for food safety based on evidence from A4NH Phase I and II	Complete	In India, manuals were developed for training pig and dairy farmers and training of trainers started; laboratories were also assessed. In Kenya we engaged with policymakers over an upcoming randomized controlled trial for milk vendors. Focus group discussions were held with vendors and gender sensitive training materials prepared.	<a href="#">Training manual (pig bandhu)</a> and for <a href="#">pig farmers</a> <a href="#">Training manual (milk traders)</a>

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	<ul style="list-style-type: none"> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> </ul>		2019 - Six food safety projects launched to test market-based food safety innovations, all developed using inputs from A4NH food safety research: A4NH leads or co-leads three	Complete	They six projects are: Safe Pork (Vietnam), Assam Agribusiness and Rural Transformation (APART) India, MoreMilk (Kenya), PullPush (Ethiopia - Burkina Faso), Build Uganda (Uganda), Safe Food Fair Food (SFFF) Cambodia (Cambodia). All six projects are using tools for risk assessment and management developed under A4NH. At the same time new research collaborations for wider impact were established (e.g. Wageningen University & Research). Links to evidence describe activities in (1) Burkina Faso and Ethiopia; (2) Uganda; and (3) the new One Health Centre.	<a href="#">Burkina Faso and Ethiopia</a> <a href="#">Uganda</a> <a href="#">One Health Center</a>
F3 Outcome: Biocontrol and GAP delivered at scale in key countries along with understanding of their impact and appropriate use	<ul style="list-style-type: none"> <li>• Reduced market barriers</li> <li>• Reduced biological and chemical hazards in the food system</li> <li>• Appropriate regulatory environment for food safety</li> <li>• CC Gender-equitable control of productive assets and resources</li> <li>• CC Increase capacity of beneficiaries to adopt research outputs</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> </ul>	By the end of 2019, Aflasafe was registered in 9 African countries. To date, three companies and one government partner have been licensed to manufacture and distribute Aflasafe products. Ministers from Mozambique and Tanzania endorsed Aflasafe; the Governments of Sudan and Togo requested technical support from IITA to develop Aflasafe products for their countries. The Governments of Burkina Faso and Ghana are rolling out national initiatives to raise awareness of and build capacity to control and mitigate aflatoxin. An external evaluation of Aflasafe in Nigeria concluded that sustainability depends on raising consumer demand for Aflasafe-treated maize, enforcing existing regulations, and increasing testing capacity.	2019 - Aflasafe officially registered in Zambia and Tanzania, making local sale, manufacture, and use of aflasafe feasible	Complete	In 2019, Aflasafe TZ01 and Aflasafe TZ02 were registered in Tanzania and Aflasafe MWMZ01 and Aflasafe MZ02 were registered in Mozambique. In 2018, Aflasafe ZM01 and Aflasafe ZM02 were registered in Zambia. To date, there are 9 African countries with 12 different registered Aflasafe products.	<a href="#">Progress by country</a> <a href="#">Registration and commercialization in Tanzania</a> <a href="#">Registration in Mozambique</a>
			2019 - Aflasafe manufacturing and distribution agreement signed between IITA and private sector companies in Ghana and Tanzania	Complete	A to Z Textile Mills Ltd. signed a technology and transfer licensing agreement in May 2019 licensing them to manufacture and distribute Aflasafe TZ01 in Tanzania. By December, their new manufacturing facility was nearly complete. In Ghana, Macrofert Ltd. was appointed to distribute Aflasafe GH02; search is ongoing for manufacturing partner.	<a href="#">Tanzania</a> <a href="#">Ghana</a>
			2019 - Final report describing analysis and lessons learnt from incentivization of Aflasafe in Nigeria (AgResults initiative	Complete	The pilot has successfully created a niche for Aflasafe™ treated maize, where buyers from supermarkets, poultry feed market and export markets paid a premium. This AgResults blog describes the promising	<a href="#">Assessing the impact</a> <a href="#">Lessons Learned</a>



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			project) disseminated to stakeholders		results from the external evaluation and includes a link to the full report. The AgResults Lessons Learned Briefs describe more.	
F4 Outcome: Development program implementers and investors (governments, NGOs, UN institutions) use evidence, tools and methods to design and implement cost-effective nutrition-sensitive agricultural programs at scale	<ul style="list-style-type: none"> <li>• Increased livelihood opportunities</li> <li>• Increased availability of diverse nutrient-rich foods</li> <li>• Increased access to diverse nutrient-rich foods</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> <li>• CC Gender-equitable control of productive assets and resources</li> <li>• CC Improved capacity of women and young people to participate in decision-making</li> </ul>	In 2018, we reported uptake of evidence in Alive & Thrive (a multi-country maternal and child nutrition initiative) and the World Food Program (WFP) in Sri Lanka. In this year's milestone, we report uptake of evidence in the Ministry of Agriculture (Bangladesh) and WFP (headquarters). IFPRI researchers are also working with WFP-Sri Lanka to redesign their Food Assistance for Assets Program to make it more nutrition-sensitive. In addition, in 2019, the European Commission requested IFPRI's input in a meeting to design multi-sectoral programs to improve nutrition (bringing together rural development, agriculture, nutrition, and health sectors).	2019 - At least 2 implementing organisations use A4NH's evidence (from Phase 1) of (gendered) impacts and cost-effectiveness in programming of nutrition- and gender-sensitive agriculture programs	Complete	The Ministry of Agriculture (MoA, Bangladesh) is scaling-up a package of agriculture, nutrition, and gender training to benefit thousands of households, which was informed by a similar intervention co-designed and evaluated by IFPRI. The World Food Programme (WFP) and IFPRI co-developed nutrition-sensitive program guidance and published a paper on the development of the guidance.	<a href="#">Lessons from Bangladesh</a> <a href="#">Leveraging an Implementation-Research Partnership to Improve Effectiveness of Nutrition-Sensitive Programs at the World Food Programme</a>
F4 Outcome: Researchers and evaluators, including in CGIAR and other CRPs, use evidence, tools and methods to design high-quality evaluations of a range of nutrition-sensitive agricultural and other	<ul style="list-style-type: none"> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> <li>• CC Increased capacity for innovation in partner development organizations and in poor and vulnerable communities</li> </ul>	The cross-flagship, IFPRI and ILRI evaluation (using a randomized controlled design combined with a process evaluation and a cost study) of the MoreMilk intervention is ongoing. In Burkina Faso, we are collaborating with AfricaSANTÉ on an integrated poultry value chain and nutrition intervention. The process evaluation was completed in 2019. The same combination of methods is being used in MoreMilk. With the World Food Program, we completed an evaluation study design; the baseline will start in 2020. Lastly, World Vision Ethiopia has requested our support to design rigorous impact evaluations of their programs, which will be further developed in 2020.	2019 - In collaboration with decisionmakers, nutrition-sensitive agriculture and gender programs are designed in 2 more target countries (tbd) with a rigorous evaluation component included	Complete	In Burkina Faso, a five-year impact evaluation was designed to assess the impact of poultry value chain interventions on women's and children's diets, health and nutritional status. In Sri Lanka a 1-2 y impact evaluation was developed to assess the impact of one of the World Food Program's nutrition-sensitive programs on men's and women's diets and other outcomes.	<a href="#">Examining the implementation of multisectoral programs: The SELEVER process evaluation</a> <a href="#">Study protocol for the Sri Lanka work</a>



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multisectoral programs, and continue to build evidence						
F4 Outcome: Regional, international and UN agencies and initiatives and investors use evidence, tools and methods to inform decisions and investment strategies to guide and support nutrition-sensitive agricultural programming and nutrition-sensitive policies	<ul style="list-style-type: none"> <li>• Increased livelihood opportunities</li> <li>• Increased availability of diverse nutrient-rich foods</li> <li>• Increased access to diverse nutrient-rich foods</li> <li>• Optimized consumption of diverse nutrient-rich foods</li> <li>• CC Gender-equitable control of productive assets and resources</li> <li>• CC Improved capacity of women and young people to participate in decision-making</li> <li>• CC Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Increased capacity for innovation in partner development organizations and in poor and vulnerable communities</li> </ul>	Previously, we reported on policy engagement with 10 focal countries through the Stories of Change initiative, described further in the special issue of <i>Global Food Security</i> . The focused engagement with Ethiopia in 2019 was largely due to an A4NH researcher who is embedded in the national and supra-national policy process. In 2019, their work brought together members from public health, research organizations, as well as national government to review current implementation of nutrition-sensitive policies. There are no other focal countries in which this flagship has designated researchers in-country to work at this level directly.	2019 - Regional and international organizations, influenced by new knowledge, demonstrate changes in discourse, attitudes, behaviors, and practices related to cross-sectoral nutrition-sensitive agriculture	Cancelled	Instead, the 2019 work focused on national leaders, rather than regional and international organizations. Leadership courses for nutrition leadership development training for the Ethiopian Nutrition Leaders Network were developed and implemented to ensure quality implementation of programs.	
F4 Outcome: National policymakers and shapers, and	<ul style="list-style-type: none"> <li>• Increased availability of diverse nutrient-rich foods</li> </ul>	Previously, we reported on policy engagement with 10 focal countries through the Stories of Change initiative, described further in the special issue of <i>Global Food Security</i> . The	2019 - Engagement of national stakeholders in policy analysis in 3 more focal countries	Cancelled	Instead, we conducted leadership courses for nutrition leadership development training for the Ethiopian Nutrition Leaders Network	

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
stakeholders from different sectors, civil society and industry use evidence to design effective nutrition-sensitive policies, and ensure quality implementation	<ul style="list-style-type: none"> <li>Increased access to diverse nutrient-rich foods</li> <li>Optimized consumption of diverse nutrient-rich foods</li> <li>CC Enabled environment for climate resilience</li> <li>CC Gender-equitable control of productive assets and resources</li> <li>CC Improved capacity of women and young people to participate in decision-making</li> <li>CC Conducive agricultural policy environment</li> </ul>	focused engagement with Ethiopia in 2019 was largely due to an A4NH researcher who is embedded in the national and supra-national policy process. In 2019, their work brought together members from public health, research organizations, as well as national government to review current implementation of nutrition-sensitive policies. There are no other focal countries in which this flagship has designated researchers in-country to work at this level directly.			to ensure quality implementation of programs.	
F4 Outcome: Stakeholders from different sectors, governments, UN institutions, civil society and industry, including CGIAR and other CRPs, have improved capacity to generate and use evidence to improve nutrition-sensitive agricultural programming, nutrition-	<ul style="list-style-type: none"> <li>CC Increase capacity of beneficiaries to adopt research outputs</li> <li>CC Enhanced institutional capacity of partner research organizations</li> <li>CC Enhanced individual capacity in partner research organizations through training and exchange</li> <li>CC Increased capacity for innovations in partner research organizations</li> <li>CC Increased capacity for innovation in partner development organizations and in poor and vulnerable communities</li> </ul>	We continued a systematic mapping of knowledge gaps and implementation knowledge tools. This work should be completed in 2020. In addition, two courses from the African Nutrition Leadership Programme were held with a focus on strengthening the link between agriculture and nutrition. In Rwanda, we supported training of civil society organizations (CSOs) to contextualize and use evidence related to the Stories of Change initiative. The CSOs then held district-level dissemination workshops. Some districts used the evidence to make immediate changes in their programming and collaboration approaches.	2019 - Delivery of 2 trainings and development of 3 tools to enhance cross-sectoral collaborative engagement, capacity and leadership among nutrition stakeholders	Complete	Two courses to strengthen leadership capacity in multi-sectoral environments: (1) in Ghana, evidence for policy and programming and (2) in Dakar, leading change in nutrition. Package of tools to enable policymakers/stakeholders in West Africa to identify gaps in their national data system to effectively track progress on nutrition and/or inform policy. A news article captured the dissemination of the results in Rwanda. The results from this process are also planned to be presented at the Micronutrient Forum in 2020.	<a href="https://westafrica.ansformnutrition.org/learning/transfoming-nutrition-in-west-africa-evidence-for-policy-and-programming/">https://westafrica.ansformnutrition.org/learning/transfoming-nutrition-in-west-africa-evidence-for-policy-and-programming/</a> <a href="https://westafrica.ansformnutrition.org/news/new-francophone-short-course-on-leading-change-in-nutrition-october-2019/">https://westafrica.ansformnutrition.org/news/new-francophone-short-course-on-leading-change-in-nutrition-october-2019/</a> <a href="https://westafrica.ansformnutrition.org/assessment-of-nutrition-data-in-west-africa/">https://westafrica.ansformnutrition.org/assessment-of-nutrition-data-in-west-africa/</a>

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sensitive policymaking and implementation.						
F5 Outcome: Agricultural practices modified to reduce health risks	<ul style="list-style-type: none"> <li>• Increased safe use of inputs</li> <li>• Increased resilience of agro-ecosystems and communities, especially those including smallholders</li> <li>• Enhanced adaptive capacity to climate risks (More sustainably managed agro-ecosystems)</li> <li>• Improved capacity of women and young people to participate in decision-making</li> </ul>	<p>Our interventions focus primarily on two human health risks - malaria transmission in rice farming schemes and Rift Valley fever (RVF) among livestock holders. In 2019, plans to test alternate wetting and drying (AWD) irrigation with AfricaRice in West Africa and with IRRI in East Africa advanced. AWD in rice farming has potential to limit malaria transmission as well as greenhouse gas emission. In addition, studies on livestock vaccination strategies for RVF were initiated in Kenya and Uganda. There is also ongoing work to characterize risks related to landscape-mediated effects of agriculture on vector-borne disease in Africa and South Asia.</p>	2019 - Risk maps used in Uganda for contingency planning of outbreak response for Rift Valley fever.	Extended	ILRI researchers finalized the risk maps in 2019 and have trained some government officers on how to use these risk maps in contingency planning. More policy engagement is planned for 2020. At this stage, it is too early to suggest that the maps have been adopted in government planning.	<a href="#">Description of maps and approach</a>  <a href="#">More details on the maps</a>
			2019 - Preparation and dissemination of synoptic review of current knowledge and research gaps regarding landscape-mediated effects of agriculture on vector-borne disease to guide FP5 and other research	Extended	The synoptic review was completed, and a manuscript was submitted to a peer-reviewed journal in 2019. It was rejected, so the authors are refining it to re-submit in 2020.	
			2019 - At least 1 agricultural research institution/authority in West Africa starts to include health-related indicators in evaluations and trials of alternative rice-production methods	Complete	AfricaRice is a partner with the London School of Hygiene and Tropical Medicine (LSHTM) on the alternating web and dry (AWD) irrigation in rice trials in West Africa.	<a href="#">Description of project</a>
F5 Outcome: Agricultural and public health policymakers and implementers deliver coordinated and effective solutions to	<ul style="list-style-type: none"> <li>• Reduced livestock and fish disease risks associated with intensification and climate change</li> <li>• Increased resilience of agro-ecosystems and communities, especially those including smallholders</li> <li>• Enhanced adaptive capacity to climate</li> </ul>	The milestones for this outcome demonstrate progress in developing, validating, and evaluating a suite of strategies to mitigate cysticercosis in East Africa and other zoonotic threats in different contexts in Africa and South Asia. In 2019, we established a new partnership with the University of Munich to support the development of a diagnostic kit for cysticercosis. ILRI is also working on national action plans for cysticercosis in Kenya and	2019 - Stakeholders (farmers and field veterinarians) have access to a validated and semi-commercialized pen-side diagnostic assay for cysticercosis	Extended	Earlier attempts to develop a pen-side test (a diagnostic that can provide real-time information about the health status of an animal or herd) were not successful. The partnership with University of Munich will re-start efforts to develop and validate the test. The initially designed system was based on reagents where quality control between batches was not possible. We changed supplier of reagents and have now	

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cysticercosis and other zoonotic threats	risks (More sustainably managed agro-ecosystems) • CC Improved capacity of women and young people to participate in decision-making • CC Conducive environment for managing shocks and vulnerability, as evidenced in rapid response mechanisms	Uganda, as well as an action plan for brucellosis in Kenya. The latter has been submitted for approval by the government.			developed this further, in collaboration with the US CDC. New tests are to be validated in 2020 (pending access to the field); a commercial sector producer is interested in taking this forward and is developing a commercial manufacture case with support from the Gates Foundation.	
			2019 - Policy makers in Kenya convened to agree on a draft national policy document on brucellosis diagnosis and control	Complete	A draft policy document has been submitted to the government for approval, which is expected to happen in 2020. Policy doc is not yet public but is to be ratified in 2020. An INTERNAL ONLY link was provided for quality assurance purposes.	
			2019 - National neglected tropical disease task forces in Kenya and Rwanda made aware of prevalence, spatial distribution and burden of cysticercosis in smallholder livestock systems through stakeholder convening following publication of a technical report	Extended	Technical report has been finalized, but we are awaiting government approval before it can be disseminated. It is too early to claim that awareness has been raised as a result of this report. In Kenya, it is now a priority disease as a result of this work with a national plan to developed before 2023. In Rwanda, it is national recognized but not yet prioritized.	
			2019 - National level convening of public sector stakeholders in Kenya to disseminate results of value chain mapping and transmission of zoonotic diseases	Complete	A meeting was held in ILRI Nairobi in December 2019 to share the final project outputs. The reports are available (shared for the purposes of quality assurance), though not disseminated publicly.	
F5 Outcome: Public and private sector policymakers implement measures to reduce human and animal health risks from antimicrobial resistance and	• Reduced livestock and fish disease risks associated with intensification and climate change • Increased safe use of inputs • CC Enhanced institutional capacity of partner research organizations • CC Enhanced individual capacity in partner research	Partnerships for antimicrobial resistance (AMR) research and policy interventions involving some CGIAR institutions (ILRI, IFPRI, IMWI, WorldFish), some universities (LSHTM, Swedish University of Agricultural Sciences) and a few countries (Kenya, Uganda, Vietnam and Bangladesh) were established in 2019. These partnerships work under the aegis of the CGIAR AMR Hub that was launched in February 2019.	2019 - CGIAR AMR platform compiling agricultural-associated AMR research data established, maintained, and used by internal and external stakeholders	Complete	The CGIAR Antimicrobial Resistance Hub (AMR) was launched in a high-profile event at ILRI in February 2019 and is led by Arshnee Moodley. A website was launched and contains a growing body of resources on agriculture-associated AMR.	<a href="#">CGIAR AMR Hub</a>
			2019 - One Health evaluation framework for antimicrobial resistance interventions is available for use by research within and outside CGIAR	Complete	Researchers from this flagship drafted and provided major inputs into CGIAR's Antimicrobial Resistance (AMR) Strategy. The Strategy describes how a One Health	<a href="#">CGIAR AMR Strategy</a>

Flagship Outcomes 2021	Sub-IDOs	Summary on progress against each outcome this year	Milestone	Milestone status	Evidence for completed milestones or explanation for extended, cancelled or changed	Link to evidence <sup>1</sup>
other interactions	organizations through training and exchange				framework can be used to design and test AMR interventions.	
			2019 - Risk map completed on insecticide resistance selection across rice farming areas in three countries in West Africa.	Extended	The activity starting period was delayed. We missed the rice production season, delaying data collection. IITA completed data collection in 2019, but analysis of the samples is ongoing. The data analysis has to be completed before the risk maps can be developed.	
F5 Outcome: Agricultural research and funding institutions initiate collaboration with public health counterparts to solve complex intersectoral problems	<ul style="list-style-type: none"> <li>• Reduced livestock and fish disease risks associated with intensification and climate change</li> <li>• Increased safe use of inputs</li> <li>• CC Enhanced institutional capacity of partner research organizations</li> <li>• CC Enhanced individual capacity in partner research organizations through training and exchange</li> </ul>	Milestones for this outcome demonstrate how this flagship is convening actors representing agriculture and public health to raise awareness of areas of collaboration and eventually, design and implement joint projects. Since 2018, this flagship has convened several multisectoral meetings bringing together agriculture and public health actors. Some have been regional in nature while others have been international. The annual Agriculture, Nutrition, and Health Academy (ANH Academy), which is co-led by A4NH and the London School of Hygiene and Tropical Medicine (LSHTM) also serves as a platform for this flagship to facilitate these collaborations.	2019 - Researchers representing natural and social scientists from health and agriculture participate in theme-based symposia to identify and develop research areas, recognizing gender and equity issues	Complete	This is a sample of events held in 2019: (1) ANH Academy Week 2019 in Hyderabad; (2) LSHTM week; (3) workshop in Vietnam.	<a href="#">ANH Academy Week 2019, Hyderabad</a> <a href="#">LSHTM Week 2019, London</a> <a href="#">One Health AMR Research Coordinating Workshop, Hanoi October 2019</a>

**Table 6: Number of peer-reviewed publications from 2019 (sphere of control)**

	Number	Percent
Peer-reviewed publications	232	100.0%
Open Access	199	85.78%
ISI	214	92.24%

**Table 7: Number of participants in capacity development activities in 2019**

Number of trainees	Female	Male
In short-term programs facilitated by A4NH	22,331	21,975
In long-term programs facilitated by A4NH	129	91
PhDs	20	22

**Table 8: Key external partnerships, up to five per flagship**

*Presented chronologically by flagship.*

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership
FP1	To map urban food systems, policy options for improved nutrition, and the stakeholders associated with the policies shaping/influencing urban food systems	<ul style="list-style-type: none"> <li>• BoP Innovation Center</li> <li>• CSIRO - Commonwealth Scientific and Industrial Research Organisation</li> <li>• ECOWAS - Economic Community of West African States</li> <li>• University of Bonn</li> <li>• ISSER - Institute of Statistical, Social and Economic Research, University of Ghana</li> <li>• University of the Western Cape</li> </ul>	• Research
FP1	To collect baseline data on dietary intake, seasonal fruit and vegetable availability, and retail outlet characterization including fruit and vegetable food flows in Nigeria and Vietnam	<ul style="list-style-type: none"> <li>• NIN - National Institute of Nutrition, Vietnam</li> <li>• Rikolto (VECO)</li> <li>• University of Ibadan</li> <li>• HMU - Hanoi Medical University</li> </ul>	• Research
FP1	To study the nutritional value, recipes and value addition potential of selected wild foods ([w/Georg-August-Universität Göttingen] in cooperation with local communities [w/University of Bonn] in Turkana (Kenya)	<ul style="list-style-type: none"> <li>• GAU - Georg-August-Universität Göttingen</li> <li>• University of Bonn</li> <li>• University of Hohenheim</li> <li>• Federal Ministry of Health (Ethiopia)</li> <li>• Ministry of Health and Sanitation (Turkana, Kenya)</li> </ul>	• Capacity Development
FP1	To conduct a microsimulation aimed at vulnerable households; implementation of distributional effects in the microsimulation with food accessibility plus dietary adequacy proxied by nutrient composition of household food availability	<ul style="list-style-type: none"> <li>• CSIRO - Commonwealth Scientific and Industrial Research Organisation</li> </ul>	• Research
FP1	To collaborate on a multidisciplinary framework for identifying and analyzing innovations in food systems and identify potential innovations and future research, which resulted in a published IFPRI discussion paper	<ul style="list-style-type: none"> <li>• CIRAD - Centre de coopération internationale en recherche agronomique pour le développement</li> </ul>	• Research
FP2	To learn from tools and methods for estimating impact of fortification at scale and to work on adaptation of these tools to biofortification	<ul style="list-style-type: none"> <li>• GAIN - Global Alliance for Improved Nutrition</li> </ul>	• Other
FP2	To conduct the study on iron beans effectiveness in Guatemala	<ul style="list-style-type: none"> <li>• INCAP - Instituto de Nutrición de Centro América y Panamá</li> </ul>	• Research



Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership
FP2	To test the effectiveness and scalability of digital tools in demand creation activities and for linking farmers to input and output markets.	• PAD - Precision Agriculture for Development	• Delivery • Research
FP2	To implement effectiveness studies/address questions along the impact pathway to scale in Flagship 2.	• J-PAL - Abdul Latif Jameel Poverty Action Lab	• Research
FP3	To develop a 'technical item, which informed the eventual adoption of a resolution on how external factors (e.g. climate change, conflicts, socioeconomics,) will impact veterinary services and the adaptations required	• OIE - World Organisation for Animal Health	• Delivery
FP3	To conduct a situational assessment of food safety in Bangladesh	• BLRI - Bangladesh Livestock Research Institute	• Research
FP3	To develop the first Africa Food Safety Index; the subsequent project that was launched in 2019 will institutionalize food safety tracking and capacity building through the Malabo Biennial Review	• AU-IBAR - African Union - Interafrican Bureau for Animal Resources • PACA - Partnership for Aflatoxin Control in Africa • CTA - The Technical Centre for Agricultural and Rural Cooperation • CAADP - Comprehensive Africa Agriculture Development Programme • GFSP - Global Food Safety Partnership	• Delivery
FP3	To develop the first assessment of the Global Burden of Animal Diseases and build a community of practice for animal health economics	• CIRAD - Centre de coopération internationale en recherche agronomique pour le développement • Penn State - Pennsylvania State University • UF - University of Florida • IHME - Institute for Health Metrics and Evaluation • Food First • University of Liverpool • University of Guelph • Murdoch - Murdoch University • University of Zurich • CSIRO - Commonwealth Scientific and Industrial Research Organisation • WSU - Washington State University • KSU - Kansas State University • OIE - World Organisation for Animal Health • FAO - Food and Agriculture Organization of the United Nations	• Research • Capacity Development

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership
		<ul style="list-style-type: none"> <li>• BMGF - Bill &amp; Melinda Gates Foundation</li> <li>• DFID - Department for International Development (United Kingdom)</li> </ul>	
FP3	To collaborate on new food safety projects in Burkina Faso, Ethiopia, and Kenya	<ul style="list-style-type: none"> <li>• IRSAT - Institut de Recherche en Sciences Appliquées et Technologies</li> <li>• UF - University of Florida</li> <li>• AVRDC - The World Vegetable Center</li> </ul>	• Research
FP4	To assess the roles and impacts of World Food Programme's Food Assistance for Assets Program in Sri Lanka	<ul style="list-style-type: none"> <li>• WFP - World Food Programme</li> </ul>	• Delivery
FP4	To increase demand for nutrition policy-relevant data and evidence and capacity to use them as part of Partnerships and Opportunities to Strengthen and Harmonize Actions for Nutrition in India initiative	<ul style="list-style-type: none"> <li>• LBSNAA - Lal Bahadur Shastri National Academy of Administration</li> <li>• NEERMAN</li> </ul>	• Capacity Development
FP4	To support data analytics and strengthen nutrition-relevant data value chains globally, as part of the DataDENT (Data for Decisions to Expand Nutrition Transformation) initiative	<ul style="list-style-type: none"> <li>• R4D - Results for Development</li> <li>• JSHPH - Johns Hopkins University, Bloomberg School of Public Health</li> </ul>	• Research
FP4	To analyze data on the project-level Women's Empowerment in Agriculture Index (pro-WEAI) and develop a tool to monitor Sustainable Development Goal 5 on gender equality at national and program levels	<ul style="list-style-type: none"> <li>• Emory University</li> <li>• Cultural Practice</li> </ul>	• Research
FP4	To deliver leadership courses for nutrition professionals in West Africa	<ul style="list-style-type: none"> <li>• IDS - Institute of Development Studies</li> <li>• NWU - North-West University</li> </ul>	• Capacity Development
FP5	To support research on antimicrobial resistance (AMR) in Uganda	<ul style="list-style-type: none"> <li>• FLI - Friedrich-Loeffler-Institut (FLI)</li> </ul>	• Research
FP5	To provide training on mosquito sampling and characterization in Uganda	<ul style="list-style-type: none"> <li>• KEMRI - Kenya Medical Research Institute</li> </ul>	• Capacity Development
FP5	To conduct research on zoonotic diseases under the One Health Regional Network for the Horn of Africa (HORN)	<ul style="list-style-type: none"> <li>• AAU - Addis Ababa University</li> <li>• HAC - Hamelmalo Agricultural College</li> <li>• ISTVS - IGAD Sheikh Technical Veterinary School and Reference Centre</li> </ul>	• Research

Lead FP	Brief description of partnership aims	List of key partners in partnership	Main area of partnership
		<ul style="list-style-type: none"> <li>• LSTM - Liverpool School of Tropical Medicine</li> <li>• University of Liverpool</li> <li>• UoN - University of Nairobi</li> <li>• Amoud University</li> </ul>	
FP5	To design and conduct activities under the new CGIAR Antimicrobial Resistance (AMR) Hub	<ul style="list-style-type: none"> <li>• SLU - Swedish University of Agricultural Sciences</li> <li>• ICARS - International Centre for Antimicrobial Resistance Solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Capacity Development</li> <li>• Research</li> </ul>

**Table 9: Internal cross-CGIAR collaborations**

*Presented chronologically by flagship*

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Value added, in a few words
Collaboration with Flagship 1 for joint research on <i>Parkia biglobosa</i> , an important food tree species in Burkinabé food systems; to develop a nutrition module in RESTOOL, a tool for selection of tree species/varieties for forest restoration purposes taking into account different objectives of the restoration activities; joint research on agronomic, nutritional, economic characteristics of different priority food tree species in Beninese and Kenyan food systems; FTA nutrition priority workshop in Rome : identifying research priorities for FTA nutrition	FTA	Scientific benefits: co-learning about place of trees and tree food product in food systems and how to make restoration exercises nutrition-sensitive supporting the food system.
Collaboration with Flagship 1 for joint research on fish in Bangladesh and Nigerian food systems. In 2019, this included one joint proposal; national food systems reviews; a co-funded PhD on modelling of fish in food systems at WUR.	Fish, WorldFish	Scientific benefits
Collaboration with Flagship 1 to implement a study on agri-food system innovation in value chains for processed staples: survey of the consumer and retail landscape in Mexico City (Mexico).	Wheat, CIMMYT	Scientific benefits
Through Flagship 2, HarvestPlus continues to work with multiple CGIAR Centers - CIAT, CIMMYT, CIP, ICRISAT, IITA, and IRRI - on biofortification.	CIP, CIMMYT, ICRISAT, IRRI	Scientific
To harmonize the monitoring, evaluation, and learning and impact assessment of biofortification, and conduct field implementation of the tools developed, to track impact at scale, as well as to track sustainability and cost-effectiveness.	RTB, CIP	Efficiency benefits: To have a mutual definition and methodology to measure the impact at scale, as well as sustainability and cost-effectiveness
Collaboration with Flagship 3 to consult on a situational assessment of food safety in Bangladesh	Fish, WorldFish	Scientific
Collaboration with Flagship 4 on a published framework review/systematic mapping of work on equity, nutrition and climate change. Publication remains ongoing in 2019. Preliminary results can be reviewed in a poster: <a href="https://cgspace.cgiar.org/handle/10568/105867">https://cgspace.cgiar.org/handle/10568/105867</a> .	CCAFS	Scientific

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Value added, in a few words
Collaboration through Flagship 5 on antimicrobial resistance (AMR) research and activities linked to the CGIAR AMR Strategy and the (new in 2019) CGIAR AMR Hub, hosted by ILRI. Non-CGIAR partners include the International Centre for Antimicrobial Resistance Solutions and the Swedish University of Agricultural Sciences. A4NH Managing Partners include IFPRI, ILRI, and LSHTM.	IWMI, WorldFish, Livestock	Scientific
Collaboration through Flagship 5 with Africa Rice in West Africa and with IRRI in East Africa to test the potential of AWD (alternate wetting and drying) to limit malaria transmission as well as emission of greenhouse gases.	AfricaRice, IRRI	Scientific benefits

**Table 10: Monitoring, Evaluation, Learning and Impact Assessment (MELIA)**

*Presented chronologically by flagship. For readability, URLs have been embedded as hyperlinks in this table. The information was entered as required in MARLO.*

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
S2432 - Foresight study on the role of bilateral trade in food systems on nutrition	Completed	Ex-ante, baseline and/or foresight study	This analysis was undertaken with the intention of exploring the potential future trajectory of global systems of dietary provision, and the quality and sustainability of such systems, for a globally representative set of countries. Link to internal report is provided. Publication is expected in 2020.	<a href="#">Dietary Quality and Future Food Systems: Relational Analysis</a>
S2468 - Evaluation of a market intervention to stimulate vegetable consumption in urban Nigeria	Completed	Program/project evaluation/review	This study is part of Flagship 1's portfolio on food system innovations - designing and testing consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods. This pilot study called Veggies on Wheels, led by Wageningen University and the Federal University of Technology - Akure, offered fresh green leafy vegetables to urban consumers. The vegetables were sold in cool boxes on bikes and pushcarts at convenient locations close to workplaces. In 2019, the study was completed; preparation/publication of results is ongoing. Additional insight is needed on the business viability in order to understand options for scaling.	
S2470 - Evaluating food products from fruits for home consumption and enhanced income in Nigeria	Ongoing	Program/project evaluation/review	This study is part of Flagship 1's portfolio on food system innovations - designing and testing consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods. This study, led by IITA, aims to improve the productivity of small producers and facilitate their access to markets for fruits and fruit-based products.	
S2420 - Evaluation of intervention to address seasonal availability of and barriers to consumption of fruits and vegetables for consumers in Hanoi and Ibadan	Ongoing	Program/project evaluation/review	In 2019, this mixed methods study, led by Bioversity International and Wageningen University, used a consumer survey (~100 respondents in each site) and focus group discussions (~100 participants in Hanoi and ~40 in Ibadan) to identify barriers to fruit and vegetable consumption with a particular focus on seasonality. Analysis is ongoing with results expected in 2020 that will inform next steps in the intervention.	

<sup>2</sup> To access documents in A4NH's internal repository, please send a request to [a.wyatt@cgiar.org](mailto:a.wyatt@cgiar.org).

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
S2437 - Evaluation of the impact of distributing coupons to reduce price of fruits and vegetables for consumers in Hanoi and Ibadan	Ongoing	Program/project evaluation/review	This study is part of Flagship 1's portfolio on food system innovations - designing and testing consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods. This study, led by IFPRI, aims to increase the affordability of fruit and vegetables through the use of coupons. In 2019, the preparatory phase was finalised. Currently waiting for final approval by the donor and expected to start the evaluation in June 2020.	
S2434 - Evaluation of school-based intervention to improve diets of children and their households in Vietnam	Ongoing	Program/project evaluation/review	This study is part of Flagship 1's portfolio on food system innovations - designing and testing consumer-oriented interventions to increase accessibility, affordability and acceptability of nutritious foods. This study led by IFPRI, is assessing schools as a platform for delivering nutrition education around healthy diets to children. The evaluation will assess the impact on household diets. In 2019, the research team completed the preparatory phase including all baseline data collection. Data analysis and results are ongoing and will be completed in 2020 and will inform the next phase of the intervention.	
S1811 - Effectiveness/impact evaluation study for iron beans in Guatemala to measure adoption and iron intake outcomes on adolescent girls	Completed	Program/project adoption or impact assessment	A HarvestPlus-led randomized controlled effectiveness study was conducted in Guatemala from 2015-2019 to assess the impact of iron bean delivery programs on adolescent girls' iron deficiency status. Midline results showed significant adoption rate for iron beans and a significant increase in the amount of beans saved for household consumption among beneficiaries, and 18% increase in iron intake from beans among adolescent girls in beneficiary households, from which a one-third reduction in the disability-adjusted life years lost to iron deficiency was estimated. Endline and impact results on household adoption, and adolescent girls' intake and iron status will be available in 2020.	<a href="#">Preliminary results</a>
S2534 - Monitoring survey for vitamin A maize in Zambia	Completed	Program/project adoption or impact assessment	The Zambia Vitamin A maize (VAM) monitoring survey was completed in 2018, determined the progress in the implementation of the country program. The study was conducted in 3 Geographic Monitoring Units where 396 households were interviewed. Households mostly acquired VAM seeds from the Farm Input Support Program, agro-dealers, and seed companies. All these farmers planted the seed acquired, resulting in 3% and 4% of their maize area allocated to VAM and maize production being VAM, respectively. The production of VAM was mostly (89%) for home consumption, and households on average consumed VAM for three days in a week.	<a href="#">Zambia Outcome Monitoring Survey Report</a>



Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
S3236 - Monitoring surveys for iron pearl millet in India	Ongoing	Program/project adoption or impact assessment	India pearl millet (PM) monitoring survey, in Gangapur, Nandgoan, and Phaltan, was completed in 2019. The study assessed the penetration of iron PM (IPM), production, and utilization of IPM, and farmers' ability to identify a non-visible trait grain. 51% and 22% of the farming households ever planted IPM, sometime during the 2014-2018 period and in 2018, respectively. Farmers who planted IPM allocated 89% of their PM land to IPM. IPM constituted 93% of the PM production and mostly utilized for consumption. Only 71% of the IPM samples conformed to be IPM; thus, a systematic seed quality assessment is needed.	
S861 - Adoption study for zinc rice in Bangladesh	Ongoing	Ex-post adoption study	In 2018, a nationally and divisionally representative survey on 48,900 rice farm households in Bangladesh was conducted to understand the progress of the Zinc Rice program. The results show that the Bangladesh Zinc Rice program was still in a relatively early phase of delivery and scale-up at the time. In the early phase of scale-up, zinc rice growers tend to be those with risk-mitigating characteristics. However, the efforts to raise awareness have been very successful, with around 2 million rice farmers being aware of zinc rice and liked the yield attribute, but there was a need to boost seed supply.	
S871 - Monitoring survey for vitamin A cassava in Nigeria	Ongoing	Program/project adoption or impact assessment	Nigeria monitoring survey was completed in 2019, assessing whether the vitamin A cassava (VAC) delivery outcomes were met activities. Overall, 73% of the households were aware of VAC and its products, and 45% of farm households had acquired VAC stems at least once between 2013-2018. Despite the promotion activities, purchasing stems was not popular as free stems farmers provided. Farmers that planted VAC allocated 21% of the total cassava area to VAC. VAC constituted 25% of the cassava production, suggesting a significant yield advantage. Households allocated most produced VAC roots for home consumption where children, women of reproductive age, benefit.	
S1801 - Monitoring survey for iron beans in Colombia	Completed	Program/project adoption or impact assessment	Colombia monitoring survey concluded in 2018 was designed to assess the performance of the high-iron bean (HIB) variety registered as BIO 101 using ten outcome indicators. The study had a quantitative part where 200 households were interviewed, and a qualitative component. The results suggested a broad acceptance of BIO 101 in the household diets, since households were allocated on average 0.22 hectares of land for HIB, and 62% of their HIB production were consumed domestically. However, its small grain size affected farmers'	<a href="#">Survey reports (English and Spanish)</a>

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
			considerations around yield. Enhancing nutrition messaging and breeding varieties compatible with regards to yield and marketing are essential.	
S2456 - Evaluation of Safe Food Fair Food project on capacity building in food systems in several countries in Africa	Completed	Program/project evaluation/review	CGIAR-designed intervention worked with informal sector vendors in one of the largest abattoirs and meat markets in Nigeria to provide: a) training and technologies; b) an enabling environment; and c) motivation for behaviour change. An evaluation shortly after implementation found the intervention was acceptable, cost-effective and resulted in safer meat. This follow-up study nine years later found that the policy environment had become disabling, partly as a result of authorities' attempts to move butchers to a modern, but more distant abattoir. This was resisted by butchers. Authorities revoked the license for Bodija market and stopped providing services. Meat safety deteriorated.	<a href="#">Improving food safety in the informal sector: Nine years later.</a>
S2453 - Adoption study of good agricultural practices (GAP) for promoting food safety in pork value chains	Completed	Ex-post adoption study	Study completed but rejected by journal now seeking alternative publication	
S2490 - Use of the Theory of Change approach to designing integrated strategies for the control of Taenia solium neurocysticercosis in Uganda	Ongoing	Other MELIA activity	To develop a theory of change (ToC) for integrated strategies for the control of Taenia solium neurocysticercosis in Uganda and then use the ToC to select and designing interventions. This work is being carried out by a PhD student. The project thus far has undertaken a systematic literature review and key informant interviews to identify the factors comprising an enabling environment for T. solium control.	
S241 - Cluster randomized controlled trial to assess health and nutrition benefits of an informal dairy sector intervention in Nairobi	Ongoing	Program/project evaluation/review	This study was co-designed by IFPRI and ILRI and is called MoreMilk (2016-2021). The evaluation will assess the health and nutrition benefits of a successfully piloted approach which focuses on training milk traders to improve their milk handling (for better consumer safety and nutrition) and business practices (for improved trader livelihoods) in Nairobi. The overall objective of the project is to improve child health and nutrition outcomes through milk consumption and aims to enhance milk safety and child nutrition. The study is also looking at the gendered opportunities and constraints in informal milk trading.	
S251 - Evaluation of an integrated package of preventive interventions	Completed	Program/project evaluation/review	This study was conducted under the Innovative Approaches for the Prevention of Childhood Malnutrition (PROMIS) program (2014-2018) with Helen Keller International, which contributed to the integration of preventive and curative	<a href="#">Description of study design in both sites</a>

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
on nutritional status of young children in Burkina Faso and Mali			strategies aimed at child acute malnutrition through health facility and community-based platforms in West Africa. The intervention embeds a preventive package of behavior change modification and small-quantity lipid-based nutrient supplements (SQ-LNS) for young children. IFPRI evaluated the impact on participation in screening and referral, uptake of, and adherence to treatment; the prevalence and incidence of acute malnutrition; feeding practices and appropriate use of SQ-LNS; and linear growth and anemia.	<a href="#">Impacts in Mali</a> <a href="#">Impacts in Burkina Faso</a> <a href="#">Blog post summarizing lessons learnt and insights for programs</a>
S311 - Evaluation to assess the feasibility of integrating a package of maternal nutrition interventions in existing health services in India	Completed	Program/project evaluation/review	Evaluation carried out by IFPRI assessed changes in the individual and household use of services provided through India's Integrated Child Development Services program over the continuum of care from pregnancy up to early childhood between 2006 and 2016. Equity gaps and factors associated with use of services were assessed. Analysis has policy implications for India, but also lessons learned for other countries embarking on scaling up integrated programs to address maternal and child health, nutrition and child development.	<a href="#">India's Integrated Child Development Services programme; equity and extent of coverage in 2006 and 2016</a>
S2341 - Evaluation of the effectiveness of the Collective Action for Nutrition (CAN) Social Audit model in India	Completed	Program/project evaluation/review	This study was conducted by A4NH strategic partner, the Institute of Development Studies (IDS). This study was an independent evaluation of the Collective Action for Nutrition (CAN) Social Audit programme, which was designed and implemented by an Odisha-based NGO to reduce malnutrition among children and women by facilitating efficient implementation of food and nutrition programmes, ensuring transparency, downward accountability, and community participation. The evaluation assessed the short-term impacts of improving delivery of nutrition services and entitlements, as well as understand how the social audit lead to changes in knowledge and behavior at household and community levels.	<a href="#">Final evaluation report</a>
S281 - Impact evaluation to assess the impact of incorporating a health and nutrition behavior change communication strategy into an agricultural credit program in Bangladesh	Ongoing	Program/project evaluation/review	Targeting and Realigning Agriculture for Improved Nutrition (TRAIN) is being implemented by IFPRI and BRAC from 2015 through 2020 in Bangladesh. TRAIN's objective is to address evidence gaps related to the effects of agricultural interventions on maternal and child nutrition. The project is using a randomized control trial to assess the impact of incorporating a maternal and child health and nutrition behaviour change communication strategy into a well-established agricultural credit program targeted to women that promotes production diversity and income generation.	

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
S2342 - Evaluation of the Bangladesh Initiative to Enhance Nutrition Security and Governance project (agricultural value chain strengthening, community health and nutrition, and other activities)	Ongoing	Program/project evaluation/review	The Bangladesh Initiative to Enhance Nutrition Security and Governance (BLENGS) project aims to improve the nutritional status of children and mothers in vulnerable areas of Jamalpur and Sherpur districts by promoting multi-sector, pro-poor governance models. The project (2018-2023) is led by World Vision UK. A4NH strategic partner, the Institute of Development Studies (IDS), is leading the evaluation, which will examine the effectiveness of the technical models and approaches used to strengthen agricultural value chains, community health and nutrition support, and local service providers and health system capacity strengthening.	
S2383 - Assessing Bangladesh's national nutrition program delivery in health facilities	Ongoing	Program/project evaluation/review	This study is part of a global nutrition initiative called Alive & Thrive, (2009-2021). This formative research aims to support the strengthening of quality and reach of routine maternal, infant, and young child nutrition (MIYCN) services through the government health system. This study involves secondary analysis of health facility data and health facility assessments in upazilas in two divisions (Sylhet and Chattogram) to assess the opportunities and barriers to achieving high service coverage and utilization of services, as well as the motivation and performance of service providers. Data analysis was completed in 2019; reporting and publications are underway.	
S341 - Evaluation research to strengthen understanding of pathways through which self-help groups can improve nutrition through agriculture-nutrition interventions in India	Ongoing	Program/project evaluation/review	This study is conducted under Women Improving Nutrition through Group-based Strategies (WINGS), a larger project which aims to build the evidence base on the pathways through which self-help groups (SHGs) can improve women's and children's nutrition and health in India. IFPRI is evaluating the impact of nutrition-intensification intervention activities carried out by one of the largest NGOs in India. Publications in 2019 examined how SHG membership is associated with political participation, awareness, and use of government entitlement schemes and the correlates of women's membership in SHGs. The process evaluation (2019, not published) examined social network outcomes, including women's empowerment.	<a href="#">Correlates of women's participation in self-help groups</a>  <a href="#">The potential for women's self-help groups to improve access and use of public entitlement schemes in India</a>
S381 - Process evaluation of a nutrition and health services mobile phone innovation (mHealth) in	Ongoing	Program/project evaluation/review	This IFPRI-led study is an evaluation of the Integrated Child Development Services - Common Application Software (ICDC-CAS), a mobile-based application installed on smartphones of community health workers in order to provide comprehensive multi-level nutrition and health service delivery. The evaluation of ICDC-CAS	<a href="#">Protocol for a quasi-experimental mixed-methods evaluation</a>

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
the Integrated Child Development Services program in India			includes an impact evaluation to estimate the impacts of CAS on frontline worker service delivery and maternal knowledge and practices; a process evaluation to understand and document pathways to impact the CAS intervention and identify facilitators and barriers to implementation and scale up; a cost analysis; and technology evaluation to assess user experience. Link to 2019 study protocol.	
S391 - Maternal nutrition evaluation to gain insights on diets and nutritional practices during pregnancy in India	Ongoing	Program/project evaluation/review	This ongoing impact evaluation is examining determinants for a diverse set of maternal nutrition practices together and will offer insights in understanding the role of dominant factors associated with maternal nutrition practices. The IFPRI-led study will provide evidence of ways to improve the supply of interventions and to create adequate demand through behaviour change communication and counseling for mothers and their supportive social networks.	<a href="#">Role of key influential demand and supply factors</a>
S2382 - Evaluation of the integration of maternal diet and nutrition interventions into antenatal health care platforms in Burkina Faso and Ethiopia	Ongoing	Program/project evaluation/review	This study is part of a global nutrition initiative called Alive & Thrive (A&T), (2009-2021). This study is evaluating the impacts of intensive behavior change interventions (including improved breastfeeding counselling, nutrition-sensitive agricultural activities, community mobilization, and mass media) compared to standard interventions on complementary feeding knowledge, practices, and child growth outcomes. Since 2015, IFPRI's role in A&T has been to study issues related to program sustainability, delivery of maternal nutrition interventions, and other topics related to strengthening the quality and scale of nutrition behavior-change interventions. This research collaboration has generated several high-impact journal publications and datasets: <a href="https://www.ifpri.org/project/alive-and-thrive">https://www.ifpri.org/project/alive-and-thrive</a>	<a href="#">Impacts on child feeding practices and knowledge and child anthropometric outcomes</a>
S231 - Evaluation of mobile phone technology-based nutrition and agriculture advisory services in Tanzania	Ongoing	Program/project evaluation/review	This study is part of the mNutrition global initiative. The impact evaluation, led by A4NH strategic partner the Institute of Development Studies (IDS), along with IFPRI and Gamos, is assessing the impact, cost effectiveness and commercial viability of mNutrition. There are three integrated components: a quantitative impact evaluation, a qualitative evaluation focusing on implementation fidelity, pathways of impact and external validity, and an evaluation of the sustainability of the business model. The 2019 report makes explicit use of the mNutrition theory of change to draw conclusions about whether and how mNutrition may lead to the desired impact in Tanzania.	<a href="#">Tanzania Mixed Methods Baseline Report: Executive Summary</a> <a href="#">Tanzania Mixed Methods Baseline Report</a>
S2399 - Evaluation of mobile phone technology-based nutrition and	Ongoing	Program/project evaluation/review	This study is part of the mNutrition global initiative. The impact evaluation, led by A4NH strategic partner the Institute of Development Studies (IDS), along with IFPRI and Gamos, is assessing the impact, cost effectiveness and commercial	<a href="#">Ghana Mixed Methods Baseline Report: Executive Summary</a>

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
agriculture advisory services in Ghana			viability of mNutrition. There are three integrated components: a quantitative impact evaluation, a qualitative evaluation focusing on implementation fidelity, pathways of impact and external validity, and an evaluation of the sustainability of the business model. The 2019 report makes explicit use of the mNutrition theory of change to draw conclusions about whether and how mNutrition may lead to the desired impact in Ghana.	<a href="#">Ghana Mixed Methods Baseline Report</a>
S2403 - Building resilience through improved productivity, food security, health and nutrition: Assessing the World Food Program's Food Assistance for Assets program in Sri Lanka	Ongoing	Program/project evaluation/review	This IFPRI-led study is assessing the impact of Phase II of the World Food Programs Food Assistance for Assets (FFA) program in Sri Lanka (a type of social protection program) coupled with a behavior change communication intervention on agriculture, nutrition and well-being outcomes. The program is designed to build the resilience of smallholder farmers to climate-related shocks through rehabilitation of household and community irrigation infrastructure, supporting diversified agriculture livelihoods, enhancing market linkages and promoting positive health and nutrition behavior changes. Some smallholders will receive a cash transfer in exchange for labor or to support construction or rehabilitation of household wells.	
S2530 - Evaluation of the impact of community training using multiple information, education and communications materials on knowledge, attitude and practices on Rift Valley fever in Kenya and Uganda	Completed	Program/project evaluation/review	The study observed that community training on knowledge, attitude and practices (KAPs) on Rift Valley fever (RVF) in Muranga and Kwale counties (Kenya) had a positive impact on the levels of knowledge on RVF. No significant changes were noted on attitudes and practices.	
S2529 - Evaluation of impact of hygiene interventions to prevent nosocomial transmission of antibiotic resistant bacteria among health workers in public hospitals	Cancelled	Program/project evaluation/review	There was no direct link to agricultural research.	
S2528 - Evaluation of impact of education	Completed	Program/project evaluation/review	With educational workshops, feedback sessions carried out and distribution of equipment done (including sharp knives, knife sharpeners, and gloves and gum	

Studies/learning exercises planned for this year from POWB	Status	Type of study or activity	Description of activity/study	Links to MELIA publications <sup>2</sup>
interventions on behavior of slaughterhouse workers exposed to occupational risk of zoonoses transmission			boots), we observed that many slaughterhouse workers used the gum boots and some workers reported changes in their practices (e.g. in Shinyalu slaughter slab they used what we dubbed a "heart extraction" method to slaughter pigs.	
S2531 - Evaluation of the adoption levels of mobile phone-based surveillance systems in selected counties in Kenya	Ongoing	Ex-post adoption study	We collated perceptions on the performance of a mobile phone-based syndromic surveillance system for collecting animal health data that had been deployed in five counties in northern Kenya (i.e., Turkana, Marsabit, Isiolo, Garissa, and Wajir).	

*Note: Some studies that appeared in Table 2B in the 2019 POWB were removed for this table based on feedback we received during the 2018 annual reporting process suggesting some studies we had included were not relevant.*



**Table 11: Update on Actions Taken in Response to Relevant Evaluations**

*This information was provided in the 2017 Annual Report. The information remains the same and there is nothing new to add.*

**Table 12: Examples of W1/W2 use in 2019**

*Presented by broad area of use.*

Specific examples, including through set aside strategic research funds or partner funds	Broad area of use of W1/W2
Engagement with CGIAR partners and others in food system approaches, including the CGIAR food system convenings, synthesis and follow-up actions (food environment working group and support to other CRPs), plus the CGIAR-France food systems and nutrition partnership workshop	Pre-start up
National food system and dietary gap assessments in four focus countries (Bangladesh, Ethiopia, Nigeria, and Vietnam), food consumption and supply analysis in rural, peri-urban and urban transects	Research
Expansion of equity research, including a scoping review, stakeholder consultations, a commissioned study on youth and food systems (to be completed in 2020), and small grants to all five flagships	Research
Support to the development and dissemination of the project-level Women's Empowerment in Agriculture Index (pro-WEAI) from a portfolio of 13 nutrition-sensitive agriculture projects with multiple implementing partners.	Research
Seven new research initiatives in all five flagships, including a cross-flagship initiative to anchor outputs and processes to national and sub-national food systems actors and processes in the four focus countries and mixed methods research on the drivers and potential responses to the double burden of malnutrition	Research
Establishment of the CGIAR Antimicrobial Resistance (AMR) Hub to support country solutions for mitigating AMR – Kenya and Vietnam as first countries for engagement – plus cross-institutional research into agriculture and food contributions to AMR	Research
Support to in-country coordination teams and national partners in the five focus countries - Bangladesh, Ethiopia, India, Nigeria, and Vietnam - linking A4NH research to national government and partner priorities and actions and a range of other partnership building and capacity development activities	Policy
Co-sponsor of the Agriculture, Nutrition and Health Academy Week conference in Hyderabad; funded food system PhD programs and seed grants to local MSc students from focus countries; support to the Scaling Up Nutrition (SUN) movement, the Comprehensive Africa Agriculture Development Programme (CAADP), and other nutrition leadership capacity development	Capacity development
Coordinated monitoring, evaluation, and learning for biofortification; external evaluation of agriculture-nutrition programs and policies from 2003-2016; and contributions to developing and maintaining MARLO (the cross-CRP MIS tool for planning and reporting to the CGIAR System Organization)	Other Monitoring, learning, evaluation and impact assessment (MELIA)
Commercialization, regulation and delivery channel actions at different stages of delivery to guide investments, partnerships and enabling actions for scaling Aflasafe in Africa	Delivery
First FAO/WHO/AU/WTO Conference on Food Safety and development of the Africa Food Safety Index with the Partnership for Aflatoxin Control in Africa (PACA)	Other: Dissemination
Development and dissemination of an important think piece on the global focus on stunting as a nutrition outcome; maintenance and promotion of the Gender-Nutrition Idea Exchange blog; and chapter in the CGIAR Collaborative Platform for Gender Research book on the critical ideas for next generation of CGIAR gender research	Other: Dissemination and synthesis

**Table 13: CRP Financial Report**

Flagships	Planned Budget 2019 (millions of USD)			Actual expenditure (millions of USD)			Difference (millions of USD)			Comments
	W1/W2	W3/Bilateral	Total	W1/W2	W3/Bilateral	Total	W1/W2	W3/Bilateral	Total	
<b>F1 - Food Systems for Healthier Diets</b>	\$4,221,194	\$11,054,473	\$15,275,667	\$4,017,203	\$9,934,836	\$13,952,039	(\$203,991)	(\$1,119,637)	(\$1,323,628)	Grants were underestimated in POWB doesn't include the strategic competitive grants
<b>F2 - Biofortification</b>	\$3,308,386	\$29,574,813	\$32,883,199	\$3,378,007	\$28,167,713	\$31,545,720	\$69,621	(\$1,407,100)	(\$1,337,479)	Doesn't include the strategic competitive grants
<b>F3 - Food Safety</b>	\$3,836,858	\$7,989,122	\$11,825,980	\$3,735,733	\$9,885,064	\$13,620,797	(\$101,125)	\$1,895,942	\$1,794,817	Noted in POWB that grants were under-estimated. doesn't include the strategic competitive grants
<b>F4 - Supporting Policies, Programs, and Enabling Action through Research (SPEAR)</b>	\$4,153,881	\$16,925,909	\$21,079,790	\$3,639,721	\$11,664,180	\$15,303,901	(\$514,160)	(\$5,261,729)	(\$5,775,889)	Grants were over-estimated in POWB doesn't include the strategic competitive grants
<b>F5 - Improving Human Health</b>	\$2,966,609	\$3,212,079	\$6,178,688	\$2,349,809	\$1,539,736	\$3,889,544	(\$616,800)	(\$1,672,343)	(\$2,289,144)	Slower expenditure on grants received. Expected to catch-up in 2020. doesn't include the strategic competitive grants
<b>Strategic Competitive Research Grant</b>	\$1,990,000		\$1,990,000	\$503,206		\$503,206	\$1,486,794	\$0	\$1,486,794	The strategic competitive grants were awarded to each Flagship based on a competitive expression of interest/proposal process. The total funding shown above is not included under each flagship budget and expenditure, its part of the total W1/W2 budget and expenditure.
<b>CRP Management &amp; Support Cost</b>	\$2,954,428	\$4,113,139	\$7,067,567	\$2,553,207	\$1,898,122	\$4,451,329	\$401,221	\$2,215,017	\$2,616,238	CRP Management Support Cost includes Cross-cutting units on; Country coordination and engagement, Gender, equity and empowerment, and Monitoring and evaluation budget and expenditures. The cross-cutting units W1/W2 budget and expenditure is about 46% of the total Management and support cost.
<b>CRP Total</b>	<b>\$23,431,356</b>	<b>\$72,869,535</b>	<b>\$96,300,891</b>	<b>\$20,176,886</b>	<b>\$63,089,652</b>	<b>\$83,266,537</b>	<b>\$521,558.41</b>	<b>(\$5,349,849.63)</b>	<b>(\$4,828,291.22)</b>	