RESEARCH PROGRAM ON
Agriculture for Nutrition and Health

Led by IFPRI

2018
ANNUAL REPORT
to the CGIAR System Organization

A4NH is led by the International Food Policy Research Institute and managed by six additional partners: Bioversity International, the International Center for Tropical Agriculture, the International Institute of Tropical Agriculture, the International Livestock Research Institute, the London School of Hygiene & Tropical Medicine, and Wageningen University and Research.

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

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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: Bioversity International, 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 2018 accomplishments that you will read about in this report include:

Evidence-based contributions to programs and policies

- National plans in Bangladesh emphasized agriculture-nutrition linkages and promoted multi-sectoral interventions that approach nutrition through an agricultural lens and vice versa, referencing results from a six-year research initiative in that region.
- The Indian Council of Agricultural Research established minimum levels of iron and zinc for their pearl millet breeding program, levels informed by joint research with CGIAR.
- Through the Partnership for Aflatoxin Control in Africa (PACA), three countries included Aflasafe as a component for aflatoxin mitigation in their National Agriculture Investment Plans.
- The Reach, Benefit, Empower framework, which helps distinguish between approaches that 'reach' women as participants, those that actually 'benefit' women and finally those that 'empower' them, was used by development partners.
- In Ethiopia, several organizations used a recent paper, which applied a food systems framework to research priorities in the Ethiopian context, as a guiding document in their work on food systems.

New investments based on lessons learned

- The Bill & Melinda Gates Foundation and the UK Department for International Development used our evidence on food safety in low- and middle-income countries to shape their $13 million research for development investment.
- The World Bank and the Government of Malawi agreed to scale-up a nutrition-sensitive intervention based on results from an impact evaluation which showed that preschools can be an effective platform for delivering a nutrition-sensitive agricultural intervention.
- In Kenya, the Department of Veterinary Services allocated funds and personnel to scale-up the use of a mobile-phone based surveillance system, co-developed and piloted with CGIAR, that will be used to prevent the spread of zoonotic diseases and protect meat safety in one county.

Release of innovations

- Iron-biofortified pearl millet was released in Niger and zinc-biofortified maize was released in three more countries in Latin America.
- Aflasafe was registered in Ghana, Tanzania, and Zambia, bringing the total to eight countries.

New partnerships to support science and scaling

- We signed a memorandum of understanding with the Ethiopian Public Health Institute to strengthen collaboration around nutrition and health.
- With AfricaRice, we started fieldwork as part of an overall joint strategy to build disease management strategies into rice intensification programs in West Africa.
- With the International Potato Center (CIP), we established a collaboration to harmonize the monitoring and evaluation of scaling-up biofortification.

More research outputs, events, and achievements can be found in the interactive A4NH 2018 Annual Report, on our website, or @A4NH_CGIAR on Twitter.

Part A: NARRATIVE

1. KEY RESULTS

1.1 Progress Towards SDGs and SLOs

As CGIAR's only research program on nutrition and health, Agriculture for Nutrition and Health (A4NH) research contributes to the system-level outcome (SLO) on food and nutrition security for health. Our 2018 contributions to the SLO targets from rigorous adoption and impact data are summarized in Table 1 and described below.

- In 2018, 4.5 million farming households were reached with biofortified planting material, bringing the total number of farming households growing and consuming biofortified crops globally to 7.6 million. In 2018, 28 new biofortified crop varieties were released, bringing the total number of releases through HarvestPlus efforts to 208 varieties of 11 crops, across 30 countries (with 31 additional countries in testing phase). When orange-fleshed sweetpotato varieties released through the International Potato Center (CIP) are included, this figure increases to more than 300 varieties of biofortified crops.

- During 2018, more than 63,000 hectares were treated with Aflasafe by approximately 60,000 farmers, allowing production of maize and groundnut with safe aflatoxin levels. Large-scale use of Aflasafe contributed to improved food safety in most of the areas where crops were treated. The large majority of the treated crops contained aflatoxin-compliant concentrations even for the most stringent markets (i.e., less than 4 ppb total aflatoxins). In Nigeria, use of Aflasafe increased the income of smallholder maize farmers (average 11.5% more than regular maize). Some agribusinesses are investing their increased income to expand their businesses. In addition, a total of 10,919 persons across all countries where the Aflasafe initiative operates have received training on aflatoxins and management strategies.

1.2 CRP Progress towards Outputs and Outcomes

1.2.1 Overall CRP progress

A4NH seeks to realize the potential of agricultural development to contribute to improved nutrition and health of people worldwide. We highlight two 2018 achievements made outside the progress achieved through our five flagships.

Gender and equity. It has been a momentous year for our Gender Equity and Empowerment (GEE) unit with the publication of the Reach Benefit Empower (RBE) framework and the launch of the pilot version of the project-level Women's Empowerment in Agriculture Index (pro-WEAI), a survey-based index for measuring empowerment, agency, and inclusion of women in the agriculture sector. Capacity building workshops and technical support provided by the WEAI Resource Center keep the attention on the critical role gender has in agricultural research and increase the volume and quality of evidence. In response to recommendations from a 2017 review, A4NH commissioned a set of studies on equity in agriculture, nutrition, and health in 2018. Results from these studies will help shape our overall equity research strategy (expected in 2019-2020).

Convening stakeholders around nutrition and health. Since 2016, A4NH has co-organized the Agriculture, Nutrition and Health Academy Week event with the London School of Hygiene & Tropical Medicine (LSHTM). The event has enhanced individual research capacity of early career researchers from low- and middle-income countries and filled a gap in networking opportunities around agriculture, nutrition, and health. A4NH researchers also helped organize several high-level convenings, including a side event around the future of food systems at the Accelerating the End of Hunger and Malnutrition conference and a Brussels Development Briefing on food safety .

1.2.2 Progress by flagships

F1 – Food Systems for Healthier Diets Flagship progress

- An analysis of food system components and their linkages with diets in Ethiopia was published, identifying 25 research areas for which there is insufficient evidence available. This paper has served as a guiding document for the National Information Platforms for Nutrition (NIPN), Alive & Thrive, and the World Resources Institute. Comparable publications for Bangladesh, Nigeria, and Vietnam are expected in 2019.

- To understand dietary patterns and identify where gaps in healthy diets exist, researchers undertook analyses using nationally -representative household expenditure surveys, which allows for comparisons of food intake and dietary quality across regions and socioeconomic groups. Reports for Ethiopia and Nigeria have been finalized; Bangladesh and Vietnam are ongoing. Researchers also created food-composition data tables and conducted diagnostic workshops in Bangladesh and Nigeria. Foresight analysis revealed how the Nigerian food system is expected to transform in coming decades and identified leverage points for ensuring the transformation contributes to balanced diets.

- An article in World Development reviewed the different narratives about food systems and the way sustainability is defined. The authors concluded that trade-offs between the different dimensions of sustainability are unavoidable and proposed a framework on how to transition to sustainable food systems.

F2 – Biofortification Flagship progress

- Iron-biofortified pearl millet was released in Niger, which will help combat iron-deficiency anemia and support healthy cognitive and physical development in children. Zinc-biofortified maize was released in three more countries in Latin America— Colombia, Guatemala, and Nicaragua.

- Two key studies establishing the efficacy of iron and zinc biofortification to improve health and nutrition were published. The studies showed that iron-biofortified pearl millet can significantly improve nutrition and cognitive performance in adolescents, stemming the negative effects of iron deficiency, and that young children in India who ate foods prepared with zinc-enriched wheat spent significantly fewer days sick.

- By the end of 2018, 21 countries had included biofortification in national agricultural and/or nutrition strategies. India prioritized nutrition in breeding by setting official minimum standard levels of iron and zinc in all new varieties of pearl millet. The Indian government also declared

millets "nutri-cereals," important for improving food and nutrition security, and recommended their inclusion in the country's extensive public food distribution system.

- HarvestPlus made a new agreement with CIP to harmonize the monitoring and evaluation of scaling up/commercialization of HarvestPlus varieties and CIP's orange fleshed sweetpotato. This new arrangement will provide important lessons learned for CGIAR.

F3 – Food Safety Flagship progress

- The Bill & Melinda Gates Foundation (BMGF) and UK Department for International Development (DFID) made a $13 million research for development investment in food safety in six countries in Africa and one state in India, informed in part by evidence from a decade of research on informal markets. A4NH will be involved in four of these projects.

- Researchers contributed to major reports with the World Bank, The Safe Food Imperative, and the Global Food Safety Partnership, Food Safety in Africa . The first randomized controlled trial (RCT) on aflatoxin and child stunting was published. The study demonstrated no causal links at 2 years of age but found an association (not necessarily indicative of causation) at 12 months. A special issue of Global Food Security included 12 articles on leveraging value chains for food safety and nutrition security.

- Aflasafe was registered in three more countries – Ghana, Tanzania, and Zambia - bringing the total to eight. Farmers in more countries, if using Aflasafe with other management practices, will have increased chances to reach premium markets reserved for aflatoxin-compliant crops.

- Through the Partnership for Aflatoxin Control in Africa (PACA), three countries included Aflasafe as a component for aflatoxin mitigation in National Agriculture Investment Plans.

F4 – Supporting Policies and Enabling Action through Research Flagship progress

- The Leveraging Agriculture for Nutrition in South Asia (LANSA) initiative ended six years of work. A special issue of Food Policy summarized highlighted lessons for researchers and policymakers. Strong partnerships and dissemination efforts have meant LANSA results have been used to inform national investment plans, introduce nutrition elements into agricultural extension models, and move the nutrition-sensitive agricultural agenda forward across several countries in South Asia.

- The World Bank and the Government of Malawi agreed to scale-up a nutrition-sensitive agricultural intervention based on results from an impact evaluation which showed that preschools can be an effective platform for delivering this type of intervention. This project is expected to benefit 1.2 million preschool-aged children in 13 districts.

- The article on 'what works' as it relates to nutrition-sensitive agricultural programs was used by Alive & Thrive to inform nutrition-sensitive agriculture work in their second iteration and by the World Food Programme to improve the design of their nutrition-sensitive programs as part of an ongoing partnership with A4NH.

- Rigorous evidence of the effectiveness and cost-effectiveness of food-assisted multisectoral maternal and child health and nutrition programs targeted to women and children in the first 1,000 days in Burundi and Guatemala were published.

F5 – Improving Human Health Flagship progress

- New results from studies of antimicrobial resistance (AMR) genes in livestock food chains in Kenya and Vietnam added to the understanding of AMR transmission from livestock to humans. Through global engagement with other CGIAR partners, we built new partnerships and helped develop a CGIAR AMR strategy.

- The Turkana County Department of Veterinary Services allocated funds and personnel to scale-up a mobile phone-based surveillance system, co-developed and piloted with A4NH researchers, that will be used to prevent the spread of zoonotic diseases, protect meat safety, and provide data on antimicrobial use in livestock in Kenya.

- Reanalyzing studies comparing malaria risk in rice-growing and control areas in Africa showed that rice villages tend to have less malaria when baseline prevalence is high, but more malaria than non-rice villages when it is low (Chan et al., submitted). As malaria comes under greater control, irrigated rice schemes may become malaria hotspots. With AfricaRice, we launched a trial intervention to reduce vector production.

- Earlier published work showed that the poor performance of standard hospital based diagnostics for human brucellosis led to inappropriate drug use. This work has contributed to the development of policies in Kenya and Tanzania (under review).

1.2.3 Variance from Planned Program for this year

A) Have any promising research areas been significantly expanded?

This year has been the start of a trend, which we expect to continue, of greater investment in and demand for research on food safety. Our research teams met country demand expressed either directly or through the World Bank in a variety of ways. We completed food safety situational analyses in Vietnam and started the process in Bangladesh, Cambodia, Ethiopia, and Kenya. With the World Bank, we made important contributions to two major reports and contributed evidence that shaped a major investment by BMGF and DFID.

In food systems, we expanded our work in diagnostics and foresight and launched a new BMGF-funded project on consumer demand for vegetables. In response to growing interest in urban food systems, we are moving forward with this research agenda and are hopeful a stream of new research grants will be awarded in 2019 (in Bangladesh) and 2020 (in East Africa).

We provided technical inputs into the special initiative on AMR described in the new CGIAR Business Plan (2019-2021) and played a major role in the design of the CGIAR AMR Hub along with CGIAR Centers and at least two other CRPs. The increased attention to the topic has helped accelerate our plans and partnerships.

B) Have any research lines been dropped or significantly cut back?

Research areas and objectives remained mostly consistent with what was described in the A4NH Full Proposal for Phase II. A4NH remains successful in raising bilateral grant funding to maintain a healthy portfolio of research.

C) Have any Flagships or specific research areas changed direction?

In 2018, HarvestPlus, which leads Flagship 2, began a major pivot. Activities will shift to support other actors to scale biofortification, through such strategies as mainstreaming micronutrient breeding in CGIAR's programs and supporting partners - rather than delivering - biofortified varieties and products. A4NH investment in HarvestPlus will continue to focus on evaluation and generating more evidence through partnerships and advocacy. The new agreement with CIP to harmonize the monitoring and evaluation of scaling-up/commercialization of HarvestPlus varieties and CIP's orange fleshed sweetpotato will support these goals.

1.2.4 Altmetric and Publication highlights

A4NH continues to draw important links between nutrition and health and other global issues, in publications that reach wide audiences.

A4NH researchers contributed to two articles released as part of the *Lancet Countdown on Health and Climate Change*. The first, "From 25 Years of Inaction to a Global Transformation for Public Health," published in February, received an Altmetric score of 1765, with 152 news articles, including coverage in *The Telegraph* and the *Huffington Post*. The article was tweeted about 1395 times with an upward bound of approximately 4.1 million followers. The second, "Shaping the Health of Nations for Centuries to Come," published in December, earned an Altmetric score of 1711, with coverage beyond mainstream media including trade publications such as *Medical Health News* and *EcoBusiness*, and an upward bound reach on Twitter of more than 4.9 million followers.

A4NH's country-focused approach was also reflected in coverage in 2018, including a number of key papers focused on nutrition in India. One, "Understanding the Geographical Burden of Stunting in India," published in Maternal and Child Nutrition, received an Altmetric score of 147, with nine news stories, seven blog posts, and 142 tweets. Another, "Identifying Sociodemographic, Programmatic, and Dietary Drivers of Anemia Reduction in Pregnant Indian Women Over 10 Years," in Public Health Nutrition, had 12 news stories, six blog posts, and 13 tweets reaching an upward bound of nearly 92,000 followers. A third, in BMJ Global Health Journal, "Trends and Drivers of Change in the Prevalence of Anemia Among 1 Million Women and Children in India, 2006 to 2016," added to the discussion with seven news stories, including national and regionalcoverage in India, as well as six blog posts and tweets reaching an upward bound of more than 19,000 followers.

A4NH's cross-cutting work on gender and equity, in collaboration with many CGIAR Centers and CRPs, particularly PIM, received notable coverage. Global Food Security published "Women in Agriculture: Four Myths," in March. With an Altmetric score of 97, it reached more than 345,000 followers on Twitter, and was covered in several blogs. "Does Women's Time in Domestic Work and Agriculture Affect Women's and Children's Dietary Diversity?" published in Food Policy in August, received an Altmetric score of 86 and received coverage in Global Environment Outlook and reached nearly 250,000 followers on Twitter.

For the 2018 annual report, the Altmetric scores were calculated based on 134 peer-reviewed journal publications with known DOIs.

1.3 Cross-cutting dimensions (at CRP level)

1.3.1 Gender

A) List any important CRP research findings

- CGIAR researchers have developed a framework that identifies a need for projects and programs to distinguish between approaches that 'reach' women as participants, those that actually 'benefit' women, and finally those that 'empower' them. This RBE framework was described in a paper in the Journal of Agriculture, Gender, and Food Security. Other organizations outside of CGIAR are introducing the framework within their own research and project teams, including the Deutsche Gesellschaft fur Internationale ZusammenarbeitGmbH (GIZ) and the International Development Research Centre (IDRC).

- The second phase of the Gender, Agriculture, and Assets Project (GAAP2) is developing quantitative and qualitative tools to measure women's empowerment and inclusion in agricultural development projects, with 13 pilot projects underway. GAAP2 has launched the pilot version of pro-WEAI, which helps assess women's empowerment in an agricultural development project setting, diagnose areas of disempowerment, design strategies to assess deficiencies, and monitor and evaluate project outcomes. Since the original WEAI launched in 2012 (co-developed by A4NH and the CRP on Policies, Institutions and Markets (PIM) researchers with external partners), more than 85 organizations in more than 50 countries have fielded and adapted versions of the index. The research team held two pro-WEAI launch events and several capacity development workshops and seminars, launched an updated website for the WEAI Resource Center, and began developing a distance learning course about how to use and interpret pro-WEAI.

- A4NH's Gender-Nutrition Idea Exchange (GNIE) blog continues to provide a forum for researchers to share their latest research and reflections. In 2018, the GNIE blog featured a guest post on GENNOVATE, CGIAR's comparative research initiative, along with posts on gender issues in Africa's informal food markets, how households make diet and nutrition decisions, and why equity matters for food and nutrition research. With more than 19,000 views of the blog in 2018, GNIE has proven to be an effective tool for quickly and widely disseminating valuable gender and equity tools, like the RBE framework or pro-WEAI.

B) What have you learned? What are you doing differently?

The success of A4NH gender research has led to increased efforts to adapt gender methods to other equity research and expand outreach and capacity development for gender methods and metrics. As A4NH integrates other equity issues in its research, it is adapting gender methods and tools, such as the RBE framework, for studies focusing on other dimensions of equity and inclusive growth. As noted above, there have been significant outreach and capacity development efforts in 2018 for pro-WEAI and other WEAI adaptations (led by the International Food Policy Research Institute (IFPRI) gender team working in both A4NH and PIM). This demand is leading to an expansion of these efforts with donors and implementing partners to support their project portfolios and partners in 2019 and beyond. With national institutions, A4NH will be actively exploring how indicators, like pro-WEAI, can be adapted and used by national statistical agencies to expand their capability to measure gender in national development monitoring and evaluation.

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

Gender is well integrated in some parts, particularly Flagship 4. In other parts, progress is slower, or is in early stages with no results to share in 2018. Individual institutional capacity within the Managing Partners remains variable. The cross-cutting function of the GEE Unit is designed to help, such as through small equity grants to flagships. For example, recognizing that some gender issues could be missing in their research, Flagship 1 used the small equity grant to reassess gaps in the theories of change in order to understand where to focus.

1.3.2 Youth and other aspects of Social inclusion / "Leaving No-one Behind"

The 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, we conducted a series of consultations with partners in Africa, South Asia, and Southeast Asia, as well as with the Rome-based agencies, to hear their perspectives and interests in equity research. These consultations have been summarized (click here and scroll to the bottom of the page to find the series of consultation reports). 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, which will be completed in 2019:

- A framing paper about youth and food systems transformation to guide A4NH work;
- 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, which will be used to develop framework for flagship research;
- Curriculum for undergraduate students in veterinary science at the Lilongwe University of Agriculture and Natural Resources in Malawi that introduced concepts around equity issues in veterinary science research and practice and provided technical support on integrating equity aspects in research project proposals required for their coursework; and
- A structured review of existing equity in agriculture, nutrition, and health research to identify gaps and opportunities for A4NH.

A) List any important CRP research findings

Too early to share findings.

B) What have you learned? What are you doing differently?

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. Using the recommendations from this review and input from our management and advisory teams, in 2018, A4NH commissioned a set of studies on equity in agriculture, nutrition, and health, which will be completed in 2019. Those are described above.

C) Have any problems arisen in relation to youth issues or integrating youth 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

- Flagship 1 established an MSc Food System Research Grant Scheme to build capacity of young researchers and their supervisors from local universities in food systems research in Ethiopia and Vietnam. The small grant scheme includes a training workshop and mentorship and supports the integration of systems thinking in the curricula.

- The Agriculture, Nutrition and Health Academy (ANH Academy) Week has helped convene a global community of researchers and research users working on agriculture, nutrition, and health challenges. Since 2016, A4NH has co-organized this annual event with LSHTM. These events have enhanced individual capacity of early-career researchers from low-and middle-income countries and filled a gap in networking opportunities around agriculture, nutrition, and health. In 2018, the third ANH Academy Week was held in Accra, Ghana, and attracted 343 participants from 49 countries, who attended 17 learning labs and heard results from nearly 200 scientific presentations. A4NH researchers led learning labs on metrics for diets, women's empowerment, food safety, and child growth; research communication strategies; and co-led one with the Global Alliance for Improved Nutrition (GAIN) on public-private collaboration.

- Accumulated experience from impact evaluations and data analyses across different projects was drawn on to offer recommendations to the data analysis approach promoted through NIPN, which have been accepted and incorporated into their strategy. NIPN's aim is to strengthen capacity to analyze data to track progress, inform policies and improve programs for better nutrition.

- For a seventh year, the Transforming Nutrition short course, led by IFPRI and the Institute of Development Studies (IDS), trained global leaders, practitioners, and other professionals, bringing the total number of people reached through the course to nearly 200. Leaders who have taken the course have gone on to apply knowledge gained to their professional work in delivering programs and supporting policy processes for improving nutrition.

1.3.4 Climate Change

- A4NH researchers contributed to two high-profile 2018 publications on the links between climate change and human nutrition and health. One was the Lancet Countdown report on health and climate change, which is the highest-ranked CGIAR publication of all time on Altmetrics. The second was an article in Nature Sustainability, which projected the dietary availability of several nutrients and micronutrients through 2050, relative to levels needed to maintain good health.

- With the CRP on Climate Change Agriculture and Food Security (CCAFS), A4NH has continued to support the International Fund for Agricultural Development (IFAD) in mainstreaming climate change and nutrition into its investment portfolio, contributed to a joint op-ed , "Hidden impacts: As carbon dioxide goes up, crop nutrients go down," and is coordinating climate and nutrition modelling work in Bangladesh.

2. EFFECTIVENESS AND EFFICIENCY

2.1 Management and governance

- A4NH's country coordination approach is proving to be an effective means of supporting flagship research in five focus countries. The teams in Vietnam (CIAT-led with ILRI support) and Ethiopia (ILRI-led with IFPRI support) have made the most progress. In 2018, country coordination activities moved forward quickly in Bangladesh and India (both led by IFPRI). Based on a 2018 review, changes will be implemented in 2019 to move forward more efficiently in Nigeria (IITA-led). Ongoing activities and achievements from the focus countries are regularly highlighted in the A4NH e-newsletter.

- In 2018, we launched an annual review to assess partner compliance with the Program Participant Agreement (PPA) provisions, mainly around research quality, work plan delivery, and evolving roles and responsibilities in A4NH. The review and subsequent discussion were documented in a memo and shared internally.

- One management challenge in 2018 has been anticipating and responding to the major changes in CGIAR planning and reporting. As a result of revisions to the new guidance and templates, several adjustments to MARLO had to be made that delayed and disrupted A4NH planning and reporting that will hopefully not persist in 2019.

- Two new members of the A4NH Independent Steering Committee (ISC) were nominated in 2018 through a consultative process with the A4NH Planning and Management Committee (PMC). The new members will begin their three-year term in 2019. More than half of the ISC members attended the PMC's biannual face-to-face meeting in Hanoi in March 2018, providing an opportunity for them to meet local partners and policymakers and better understand A4NH research and engagement in Vietnam. Having one of the PMC's face-to-face meetings in an A4NH focus country has proven to be a helpful way for these two important management and governance bodies to interact with one another and with local partners.

2.2 Partnerships

2.2.1. Highlights of External Partnerships

National/regional researchers and policymakers

- A4NH, through IFPRI, signed a memorandum of understanding with the Ethiopian Public Health Institute (EPHI) under the Federal Ministry of Health, to strengthen collaboration across the gamut of A4NH research.

- In Ethiopia, we progressed on a major new initiative with the Food and Agriculture Organization of the United Nations (FAO) to support EPHI and the Federal Ministry of Health with development of food-based dietary guidelines. A4NH worked with its lead partners in focus countries to convene multi-stakeholder partner sharing and learning events, for example with the National Institute of Nutrition (NIN) in Vietnam and with the Power and Participation Research Center (PPRC) in Bangladesh on a food systems policy baseline.

- Two 2018 case reports highlight results from the Biodiversity for Food and Nutrition Project , a multi-country, multi-partner initiative funded by the Global Environment Facility. In Kenya, Busia County's Biodiversity Conservation Policy was the culmination of nearly two years of engagement and research with multi-level partners including policymakers, farmer groups, women's organizations, and school procurers to spread awareness regarding the value of indigenous species.

- The East African Community (EAC) launched a series of policy briefs, which were co-developed with IITA. The briefs contain key findings and recommendations from 11 technical papers developed under a prior USAID project, which was led by IITA. This achievement complements other ongoing engagement efforts with PACA.

Private sector

- One critical broker for A4NH with private sector companies has been GAIN. In 2018, GAIN and HarvestPlus established a new partnership to develop a joint approach to planning and implementing fortification and biofortification. GAIN is also a collaborator on identifying, developing, and testing public-private food system innovations. In 2018, we agreed to focus joint efforts moving forward in three A4NH and GAIN focus countries: Bangladesh, Ethiopia, and Nigeria.

2.2.2. Cross-CGIAR Partnerships

A4NH has expanded its collaborations across CGIAR and strengthened several ongoing partnerships. Highlights from 2018 are summarized below.

- Flagship 2 established a new agreement with CIP to harmonize the monitoring and evaluation of scaling-up/commercialization of HarvestPlus varieties and CIP's orange fleshed sweetpotato. This work was made possible with an additional Window 1/Window 2 (W1/W2) allocation in 2018 and implementation will begin in 2019. This new arrangement will provide important lessons learned on biofortification for CGIAR.

- Flagship 5 launched new research with AfricaRice to build disease management strategies into rice intensification programs in West Africa. More specifically, the joint fieldwork, which will begin in 2019, has been designed to track mosquito productivity of alternative irrigated rice cultivation techniques, to identify how to grow rice in Africa without growing deadly mosquitoes, and to assess effects of landscape-change on the vectoral capacity of malaria vectors.

- With the CRP on Livestock, the CRP on Fish, and Water, Land, and Ecosystems (WLE), Flagship 5 had a major role in designing the CGIAR AMR Research Hub and planning its launch (in February 2019). With these same partners, collaborative activities were initiated in 2018 to link all animal uses of antibiotics to human antimicrobial resistance.

- A4NH's country team approach helps build cross-CGIAR partnerships around food systems, but also external partnerships with local actors in our focus countries. A 2018 internal assessment identified a need to improve synergies with IFPRI's Country Strategy Support Programs (CSSPs),

which engage directly with national governments and stakeholders. Adjustments will be made in 2019 to engage these research teams in A4NH to accelerate progress toward healthy food systems in our focus countries.

2.3. Intellectual Assets

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

As in previous years, the majority of 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 has expanded registration of Aflasafe to three new countries in 2018 (Ghana, Tanzania, and Zambia), bringing the total to eight countries in Africa.

B) Indicate any published patents and/or plant variety right applications (or equivalent)

Not applicable to A4NH.

C) List any critical issues or challenges encountered in the management of intellectual assets in the context of the CRP

Not applicable to A4NH.

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

- In 2018, the external evaluation of HarvestPlus Phase 3 (2014-2018) was completed. Commissioned by BMGF, this evaluation will serve as one of the CRP Commissioned External Evaluations (CCEEs) of Flagship 2 in Phase II as described in the evaluation plan in the Full Proposal.

- The CCEE of Flagship 4 was still ongoing in 2018. The final report will be circulated to our management and governance bodies in April 2019 and we expect to finalize the report and management response in May 2019.

2.5 Efficiency

- In 2018, we looked at ways to leverage A4NH's Managing Partners in new ways. In Flagship 3, ILRI engaged Wageningen University and Research (WUR) and LSHTM to extend their established capacity in food safety by bringing in more consumer demand assessment and household level food safety hygiene issues. CGIAR's two largest biofortification initiatives agreed in 2018 to harmonize the monitoring and evaluation of scaling up/commercialization of HarvestPlus varieties and CIP's orange fleshed sweetpotato.

- Our Policy Working Group was established to help coordinate policy across A4NH. In 2018, they began efforts on new agri-food–nutrition challenges such as urban food systems and overweight and obesity, areas which fall under two A4NH flagships working on nutrition, one focusing more on issues and actors in the programs impact pathway (Flagship 4) and the other focusing more on the agri-food systems impact pathway (Flagship 1).

- We made targeted investments to strengthen our five country coordination teams, which support flagship research and engagement with local stakeholders.

2.6 Management of Risks to Your CRP

Institutional risks. Within the CGIAR System, the roles and responsibilities for mitigating the major risks lie with the Centers. Thus, A4NH seeks to work closely with and support its Managing Partners to mitigate their individual and collective risks. Key risk mitigation compliance requirements are included in the annual PPA. The annual compliance review (described in 2.1) encouraged Managing Partners to mitigate some key risks, such as ensuring institutional ethical reviews for research involving human subjects.

Programmatic risks. The key programmatic risk revolves around the ability to form a critical mass of innovative researchers across different institutions, which is most evident in Flagships 1 and 5. In 2018, the PMU and the country teams provided targeted support to the Flagship 1 team for stakeholder consultations and joint proposal coordination. The WUR team has skillfully engaged other Managing Partners in planning and implementing research and developing proposals. In Flagship 5, we made major progress in 2018 in strengthening leadership and developing clearer research roles and responsibilities across all three clusters of activities.

Contextual Risks. The main contextual risk for A4NH is partnerships. The focus country teams are playing a critical role in engaging with national partners to understand their perspectives, while wisely managing expectations. As an integrating CRP, we are working to expand partnerships with CGIAR Centers interested in working with A4NH. In 2018, we developed new agreements with the International Maize and Wheat Improvement Center (CIMMYT) on wheat processing and CIP on monitoring and evaluation of biofortification.

2.7 Use of W1/W2 Funding

In 2018, 20 percent of W1/W2 funding to A4NH was used for cross-cutting support at the CRP level and 80 percent to the flagship programs. The funds were allocated strategically 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 (Table 10). Some 2018 highlights of this critical investment are listed below.

- Using a country coordination approach, engagement and support were provided to national partners in Bangladesh, Ethiopia, Nigeria, India, and Vietnam, linking A4NH research to national government and partner priorities and actions. In four of those countries (all except India), we engaged national partners in food systems analysis, assessment of food system innovations and multi-stakeholder partnerships, and a range of partnership building and capacity development activities.

- The first RCT on aflatoxin and its effects on stunting was published, along with a review of recent evidence that summarizes existing knowledge on impacts, pathways, mechanisms, and contextual factors that affect where and how agriculture may improve nutrition outcomes.

- CGIAR innovations were more widely disseminated, such as Aflasafe in Africa and the pilot version of pro-WEAI.

- Flagship teams developed plans to fill important research gaps around food safety in Africa and Asia, agriculture's contribution to AMR, and human health issues associated with agriculture in West and Central Africa.

3. FINANCIAL SUMMARY

Total A4NH expenditure in 2018 increased by 8 percent compared to 2017. The largest increase was a one-third increase in W1/W2 expenditure, which was similar across all flagships and cross-cutting units. This increased W1/W2 expenditure came from carryover funding from 2017 and Phase I.

For A4NH overall, W3/bilateral funding in 2018 was similar (+1%) to 2017. The distribution of funding changed in 2018 with noticeable increases in W3/bilateral income and expenditure in flagships with newer institutional partnerships – Flagship 1 (+50%) and Flagship 5 (+35%) – and decreases in the more established flagships – Flagship 4 (-35%) and Flagship 2 (-8%). Flagship 3 W3/bilateral expenditure was relatively stable (+3%). CRP management costs were stable, but there was an increase in expenditure in the three cross-cutting units.

Part B. TABLES

Table 1: Evidence on Progress towards SRF targets (Sphere of interest)

SLO Target (2022)	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.	4.5 million farming households were reached with biofortified planting material, bringing the total number of farming households growing and consuming biofortified crops globally to 7.6 million (HarvestPlus global households reached projection model described in more detail here and here)Approximately 60,000 farmers treated more than 63,000 hectares with Aflasafe in 2018, allowing production of maize and groundnut with safe aflatoxin levels (donor report and further documentation here). Large-scale use of Aflasafe contributed to improved food safety in most of the areas where crops were treated. The large majority of the treated crops contained aflatoxin-compliant concentrations even for the most stringent markets (i.e., less than 4 ppb total aflatoxins). In Nigeria, use of Aflasafe increased the income of smallholder maize farmers (average 11.5% more than regular maize).	Planned studies and surveys from Flagship 2 that will provide further evidence: vitamin A cassava in Nigeria (2018), iron pearl millet in India (2018), iron beans in Colombia (2018), zinc rice in Bangladesh (2018), vitamin A OSP in Uganda (2019). The global households reached projection model will be revised in 2019. Through Flagship 3, at least half a million hectares are expected to be treated with Aflasafe by 2020. The number of treated hectares by 2022 is expected to be considerably higher. Several 2018 achievements provide evidence that A4NH is positioned to make significant contributions to this 2022 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	22.5 million people (4.5 million farming households) were reached with biofortified planting material in 2018, bringing the total number of farming households growing and thought to be consuming (awaiting studies) biofortified crops globally to 7.6 million (38 million people, based on the HarvestPlus global households reached projection model).	Planned impact evaluations (effectiveness studies) from Flagship 2, typically randomized controlled trials (RCTs) with a focus on consumption outcomes that will provide further evidence on A4NH's contribution toward this include: iron beans in Guatemala (2018-19), zinc wheat in Pakistan (concept note has been prepared and seeking funding), and multiple biofortified crops in countries TBD (2020).
10% reduction in women of reproductive age who are consuming less than the adequate number of food groups	No new evidence in 2018	A4NH aims to contribute to a 10% reduction in women of reproductive age who are consuming less than the adequate number of food groups in the each of the four priority countries of FP1. The changes are expected to come about from research on the drivers of and constraints to diet changes among target populations and food system performance related to healthier diets, from tested interventions designed to improve the performance of multiple nutrient-rich agri-food value chains, and from identified options to upscale effective food system innovations to large segments of target populations.

Table 2: Condensed list of policy contributions in this reporting year (Sphere of Influence)

Name and description of policy, legal instrument, investment or curriculum to which CGIAR contributed	Level of Maturity	Link to sub-IDOs (max. 2)	CGIAR cross-cutting marker score				Link to OICR (obligatory if Level of Maturity is 2 or 3) or link to evidence (e.g. PDF generated from MIS)
			Gender	Youth	Capdev	Climate Change	
130 - Contributions to food systems research agenda for Ethiopia with government and civil society, which in 2018 included ongoing development of food based dietary guidelines and embedding activities in efforts to operationalize the National Nutrition-Sensitive Agriculture Strategy	Level 1	• Enhanced institutional capacity of partner research organizations	1 - Significant objective	1 - Significant objective	1 - Significant objective	1 - Significant objective	OICR2218
135 - Inter-ministerial Ordinance 284/2018 lists and recognizes the nutritional and economic importance of 100 species of native Brazilian socio-biodiversity. Together with a new "Sociobiodiversity label", the two instruments incentivize farmers to continue growing/managing and selling local species both via institutional procurement and alternative market channels	Level 2	• Increased access to diverse nutrient-rich foods • Increased availability of diverse nutrient-rich foods	0 - Not Targeted	0 - Not Targeted	1 - Significant objective	0 - Not Targeted	OICR2769
136 - Busia County Biodiversity Policy - the first for Kenya's 47 counties - recognizes the importance of native species	Level 2	• Increased access to diverse nutrient-rich foods • Increased availability of diverse nutrient-rich foods	0 - Not Targeted	0 - Not Targeted	1 - Significant objective	0 - Not Targeted	OICR2222

for nutrition and food security and allocates resources for the conservation of regional food biodiversity, and the incorporation of native species into school meals linked to direct procurement from smallholder farmers.							
140 - The Indian Council of Agricultural Research (ICAR) prioritized nutrition in breeding by establishing minimum levels of iron and zinc to breed in pearl millet	Level 1	• Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research • Increased availability of diverse nutrient-rich food	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	OICR2788
143 - World Health Organization Nutrition Policy Review 2016-2017 refers to biofortification and indicates that 20 countries have included biofortification as an action area in their national policies	Level 1	• Conducive agricultural policy environment	? - Too early to tell	? - Too early to tell	? - Too early to tell	? - Too early to tell	World Health Organization Nutrition Policy Review 2016-2017 refers to biofortification and indicates that 20 countries have included biofortification as an action area in their national policies. https://www.who.int/nutrition/publications/policies/global_nut_policyreview_2016-2017/en/
144 - The African Union Specialized Technical Committee on Agriculture endorsed biofortification in 2017, noting its "great potential to contribute significantly" to reducing stunting and other forms of undernutrition. The African Union's Executive Council endorsed this recommendation in January 2018.	Level 1	• Conducive environment for managing shocks and vulnerability, as evidenced in rapid response mechanism	? - Too early to tell	? - Too early to tell	? - Too early to tell	? - Too early to tell	https://www.harvestplus.org/what-we-do/engagement This paper (below) also confirms that biofortification was discussed among the AU Specialized technical Committee in Agriculture: https://www.cambridge.org/core/services/aop-cambridge-core/content/view/FA20058E095D2C7B7EDC710662253860/S0029665119000521a.pdf/advocacy_for_scaling_up_biofortified_crops_for_improved_micronutrient_status_in_africa_approaches_achievements_challenges_and_lessons.pdf
147 - Citi Global Perspectives & Solutions (one of the world's largest financial institutions)	Level 1	• Conducive agricultural policy environment	? - Too early to tell	? - Too early to tell	? - Too early to tell	? - Too early to tell	Biofortification was recently highlighted in a report from Citi Global Perspectives & Solutions, a division of the Citi financial group that analyzes key global trends

mentions biofortification as an important nutrition innovation that is particularly relevant to the billions of people in the world whose diets primarily consist of nutrient-deficient staple foods.							and challenges through an economic and business lens. This report focuses on Feeding the Future—and how innovation and shifting consumer preferences can help feed a growing planet. https://ir.citi.com/%2FE%2BL%2FXXY1kJ84Yw2opYokGlgNZXi%2FnQE2%2Bs%2BPuRj44Cad1f2Qg8759VoKFfL2qRb0ef4iDSq6Hg%3D https://www.harvestplus.org/knowledge-market/in-the-news/citi-report-highlights-biofortification-nutrition-innovation
148 - Progress made on defining 'biofortification' in Codex Alimentarius	Level 1	• Conducive agricultural policy environment	? - Too early to tell	? - Too early to tell	? - Too early to tell	? - Too early to tell	Link to report from most recent Codex session available here: https://www.dropbox.com/s/oxikihqqwkgwhwg/CODEX_REP19_NFSDUe.pdf?dl=0 Link to previous sessions available here: https://www.ccnfsdu.de/
149 - Global Child Nutrition Forum, a learning exchange and technical assistance conference held annually to support countries in the development and implementation of sustainable school feeding programs, refers to biofortification (mentioned for the first time) among nutrition-sensitive school feeding programs to address micronutrient deficiency.	Level 1	• Conducive agricultural policy environment	? - Too early to tell	? - Too early to tell	? - Too early to tell	? - Too early to tell	Global Child Nutrition Forum - refers to biofortification under item #5 (mentioned for the first time) among nutrition-sensitive school feeding programs to address micronutrient deficiency: https://gcnf.org/wp-content/uploads/2018/10/GCNF2018_Communique_EN-1.pdf
171 - CGIAR Antimicrobial Research (AMR) strategy developed	Level 1	• Reduced livestock and fish disease risks associated with intensification and climate change • Increased safe use of inputs	1 - Significant objective	0 - Not Targeted	2 - Principal objective	0 - Not Targeted	Researchers from Flagship 5 provided technical inputs into the special initiative on AMR described in the new CGIAR Business Plan (2019-2021) and played a major role in the development of the CGIAR AMR Strategy (https://www.dropbox.com/s/c0fop87k6iz27bc/CGIAR%20AMR%20strategy.docx?dl=0) along with Centers

							(ILRI, IFPRI, IWMI, and WorldFish) and at least two other CRPs (Livestock and WLE).
207 - The National Implementation Platforms for Nutrition (NIPN) changed their data analysis approach incorporating recommendations based on accumulated A4NH experience from impact evaluations and data analyses. NIPN is designed to strengthen country capacity to analyse data to understand better how malnutrition can be prevented and to inform national policies and programmes.	Level 1	• Enhanced institutional capacity of partner research organizations	0 - Not Targeted	0 - Not Targeted	2 - Principal objective	0 - Not Targeted	For the purposes of this indicator, the data analysis approach is viewed as a critical part of NIPN's strategy. The approach has not been written down as such (to our knowledge), so this achievement remains Level 1. However, documents supporting their data analysis approach are posted online on their website under Trainings/Data Management (http://www.nipn-nutrition-platforms.org/Trainings) and Guidelines/Data Analysis (http://www.nipn-nutrition-platforms.org/Project-resources). NIPN documents and correspondence from the Flagship 4 representative on the NIPN Expert Advisory Group could be provided upon request. 1. http://www.nipn-nutrition-platforms.org/Trainings 2. http://www.nipn-nutrition-platforms.org/Project-resources
210 - Bill and Melinda Gates Foundation and UK Department for International Development make major joint investment in food safety research for development	Level 2	• Appropriate regulatory environment for food safety	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	OICR2730
212 - East African Community (EAC) Policy Briefs on Aflatoxin Prevention and Control launched and endorsed	Level 2	• Reduced biological and chemical hazards in the food system • Appropriate regulatory environment for food safety	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	OICR2780
221 - Federal Ministry of Economic Cooperation and Development (BMZ) makes a major commitment to invest in food safety research for development in Uganda	Level 1	• Appropriate regulatory environment for food safety • Reduced biological and chemical hazards in the food system	0 - Not Targeted	0 - Not Targeted	1 - Significant objective	0 - Not Targeted	BMZ made a major commitment to invest in food safety research for development in Uganda. Results and recommendations from multi-year projects in Uganda, some funded by BMZ/GIZ like mPig (https://www.ilri.org/node/39617) and the Safe Food Fair Food project (https://safefoodfairfood.ilri.org/about/) carried out by Flagship 3/A4NH helped shape this investment.

223 - The World Bank's Safe Food Imperative: Accelerating Progress in Low- and Middle-Income Countries report provides countries with a guide to avoiding the burden of unsafe food—including the right type of investments, policies, and other interventions.	Level 1	• Increased capacity of partner organizations, as evidenced by rate of investments in agricultural research • Reduced biological and chemical hazards in the food syste	0 - Not Targeted	0 - Not Targeted	1 - Significant objective	0 - Not Targeted	A4NH researchers provide contributions to this major report from the World Bank, drawing more attention to the issue of food safety in low and middle income countries and demonstrating that the burden of unsafe food can be avoided through practical and often low-cost behavior and infrastructure changes at different points along food value chains, including in traditional food production and distribution channels. https://www.worldbank.org/en/topic/agriculture/publication/the-safe-food-imperative-accelerating-progress-in-low-and-middle-income-countries
227 - The Food Safety in Africa report recommended investment into public health-focused programs with emphasis on raising awareness and empowering African consumers to demand higher food safety standards, including efforts to better inform the public about food safety issues so that demand for safe food drives market incentives for higher standards.	Level 1	• Reduced biological and chemical hazards in the food system	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	0 - Not Targeted	A4NH/FP3 researchers are active members of the World Bank's Global Food Safety Partnership and contributed to the Food Safety in Africa report. The report, launched ahead of the first International Food Safety Conference in Addis Ababa, Ethiopia (which A4NH/FP3 also helped to coordinate) highlighted the need for more targeted investment to promote food safety at a domestic level across Africa, where foodborne illnesses claim an estimated 137,000 lives a year, according to figures from the World Health Organization (WHO). https://www.gfsp.org/african-consumers-need-more-investment-food-safety-tackle-high-human-cost-foodborne-illness-new-gfsp

Table 3: List of Outcome/ Impact Case Reports from this reporting year (Sphere of Influence)

Title of Outcome/ Impact Case Report (OICR)	Maturity level	Status
OICR2218 - Analysis and collaboration lays the foundation for food system improvements in Ethiopia	Level 1	Updated Outcome/Impact case at same level of maturity
OICR2221 - Building a theoretical basis and public support for nutrition sensitive value chains	Level 1	Updated Outcome/Impact case at same level of maturity
OICR2222 - Busia County Biodiversity Policy (Kenya) recognizes importance of native species for nutrition and food security and allocates resources for the conservation of regional food biodiversity	Level 2	Updated Outcome/Impact case at same level of maturity
OICR2730 - A4NH research informs the design of a $13 million donor investment in improving food safety in six countries in Africa and one state in India	Level 1	New Outcome/Impact Case
OICR2734 - “Reach, Benefit, Empower" framework of indicators for monitoring programs and policies incorporated into trainings conducted by partners	Level 1	New Outcome/Impact Case
OICR2768 - Impact evaluation of nutrition sensitive intervention scaled up through preschools	Level 1	New Outcome/Impact Case
OICR2769 - Inter-ministerial Ordinance 284/2018 (Brazil) and new “sociobiodiversity label” incentivize farmers to continue growing and selling local species via institutional procurement and alternative market channels	Level 1	New Outcome/Impact Case
OICR2775 - Annual Agriculture Nutrition and Health Academy Week strengthens interdisciplinary research capacity among individuals from low- and middle-income research institutions	Level 1	New Outcome/Impact Case
OICR2776 - Mobile phone-based surveillance system implemented in Turkana County, Kenya has improved the delivery of animal health and food safety interventions in the county	Level 1	New Outcome/Impact Case
OICR2780 - East African Community (EAC) uses aflatoxin technical papers to prepare aflatoxin policy briefs that are endorsed by the Council of Ministers of the EAC.	Level 1	New Outcome/Impact Case
OICR2782 - Aflasafe products to reduce aflatoxin crop contamination are now registered in eight countries—three new countries in 2018	Level 1	New Outcome/Impact Case
OICR2788 - The Indian Council of Agricultural Research (ICAR) prioritized nutrition in breeding by establishing minimum levels of iron and zinc to breed in pearl millet	Level 2	New Outcome/Impact Case

Table 4: Condensed list of innovations by stage for this reporting year

Title of innovation with link	Innovation Type	Stage of innovation	Geographic scope (with location)
263 - Demonstrated impact of food-assisted maternal and child health and nutrition program on maternal and child nutritional status in Guatemala and Burundi	Social Science	Stage 3: available/ ready for uptake (AV);	Multi-national, Guatemala, Burundi
352 - Methodology for identifying diversification options for climate change adaptation	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Multi-national, India, Guatemala, Mali
354 - Agrobiodiversity Index	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
362 - Methodology for profiling indigenous food systems (elements, sustainability and resilience)	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Kyrgyzstan, Cameroon, Colombia, Vietnam, India, Finland, Peru, Guatemala, Solomon Islands, Mali
363 - E-learning course on Mainstreaming Biodiversity for Food and Nutrition (available in English, Portuguese and Turkish)	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Global
364 - Biodiversity Mainstreaming for Healthy and Sustainable Food Systems - A toolkit	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Global
365 - Using data from the Living Standards Measurement Study (LSMS), (non-food consumption data) to assess dietary intake and monitor dietary changes	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Vietnam, Ethiopia, Bangladesh, Nigeria
366 - Food system assessment in local settings (transects, food flow in Ethiopia, etc.)	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	National, Ethiopia
368 - Methodology for dietary gap analysis at national level	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Multi-national, Vietnam, Ethiopia, Bangladesh, Nigeria
370 - Methodology to analyse national food systems based on secondary reports and data: applied in Ethiopia	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Ethiopia
374 - Development of the process and methodology to assess drivers of vegetables intake	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	National, Nigeria
375 - Methodology to analysis highly informal dairy markets and its consumers	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Ethiopia
376 - Protocol to assess and reduce post-harvest losses in tomato value chain	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	National, Nigeria
377 - Tool (crates) to reduce post-harvest losses for tomatoes	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Nigeria
378 - Veggies on Wheels intervention	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	National, Nigeria

379 - Methodology for stakeholder-led identification of platforms for healthier diets and the role of platforms as mechanisms to support the scaling and anchoring of food system transformations for healthier diets	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Vietnam, Ethiopia, Bangladesh, Nigeria
383 - Vit A Maize: PVA SYN 6 F2	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Cameroon
384 - Vit A Maize variety: PVA SYN 13 F2	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Cameroon
385 - Zinc Maize variety: BIO-MZn01	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Colombia
386 - Iron Bean variety: NUA 99	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Democratic Republic of the Congo
389 - Zinc Maize variety: ICTA HB-18ACP+Zn	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Guatemala
390 - Zinc Maize variety: ICTA B-15ACP+Zn	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Guatemala
391 - Iron Pearl Millet variety: HHB 311 (MH 2179)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, India
392 - Iron Pearl Millet variety: RHB 234 (MH 2174)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, India
393 - Iron Pearl Millet variety: AHB 1269 (MH 2185)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, India
394 - Iron Pearl Millet variety: RHB 233 (MH 2173)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, India
395 - Vit A Maize variety: MH46A	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Malawi
396 - Zinc Rice variety: INPARI IR Nutri Zinc	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Indonesia
397 - Vit A Maize variety: MH45A	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Malawi
398 - Vit A Maize variety: MH47A	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Malawi
399 - Vit A Maize variety: MH48A	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Malawi
400 - Vit A Maize variety: MH49A	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Malawi
401 - Zinc Wheat variety: Nohely F2018	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Mexico
402 - Zinc Maize variety: Fortinica	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Nicaragua
403 - Zinc Maize variety: Nutre-Mas	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Nicaragua
404 - Iron Pearl Millet variety: Chakti (ICTP 8203)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, Niger
405 - Iron Bean variety: Selian 14 (MAC 44)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, United Republic of Tanzania
406 - Iron Bean variety: Selian 15 (RWV 1129)	Genetic (varieties and breeds)	Stage 3: available/ ready for uptake (AV);	National, United Republic of Tanzania
424 - Behavior change communication campaign on awareness and prevention of zoonoses, designed for health workers to deliver to patients	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Sub-national, Kenya
426 - Video clips on Rift Valley fever customised for dissemination using smart phones	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Regional, Eastern Africa
589 - "Reach, Benefit, Empower" framework of indicators for monitoring programs and policies	Social Science	Stage 4: uptake by next user (USE)	Global
592 - Zoonoses training manual for slaughterhouse workers	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	National, Kenya
593 - Pen-side diagnostic assay for cysticercosis	Biophysical Research	Stage 2: successful piloting (PIL - end of piloting phase)	Global

594 - [updated from 2017] Vicious Worm training app for cysticercosis control	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Regional, Eastern Africa
625 - Evaluation of Common Application System for Anganwadi Workers in India	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Sub-national, India
626 - Measuring coverage of nutrition counselling interventions: Leveraging available data and program experiences	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Sub-national, India
629 - Launched a collection of outputs on how to design nutrition-sensitive value chain (NSVC) projects	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Global
630 - Mainstreaming behavior change communications into agricultural projects in Uganda	Social Science	Stage 2: successful piloting (PIL - end of piloting phase)	National, Uganda
633 - New methods for identifying and analyzing constraints to greater consumption of animal-sourced foods, including measuring of affordability constraints, methods to analyze causes of high prices of nutritious foods.	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
634 - Pro-WEAI (project-level Women's Empowerment in Agriculture Index)	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	Multi-national, Ghana, India, Ethiopia, Bangladesh, Burkina Faso, United Republic of Tanzania, Mali, Kenya
635 - Architecture for a tool matrix on methodologies for implementation to support Scaling up Nutrition (SUN) countries	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
642 - Evidence on how to leverage neglected and underutilized species (NUS) to improve nutrition	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
643 - How to harness the nutrition co-benefits of climate resilient agriculture	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
644 - Community-based early childhood development centers as a platform to promote as a platform to promote production and consumption diversity in Malawi	Social Science	Stage 4: uptake by next user (USE)	National, Malawi
666 - Integrated and participatory nutrition and food safety risk assessment for wet markets	Research and Communication Methodologies and Tools	Stage 3: available/ ready for uptake (AV);	Global
681 - Framework for cost-effectiveness analysis of aflatoxin reduction	Social Science	Stage 3: available/ ready for uptake (AV);	Regional, Sub-Saharan Africa
684 - Use of nudges to improve food safety	Social Science	Stage 1: discovery/proof of concept (PC - end of research phase)	National
714 - Tailored SMS messages to consumers for improving nutrition	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Regional, Southern Asia, Sub-Saharan Africa
717 - Food safety performance tool	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Regional, Sub-Saharan Africa
718 - SMS messages for changing farmer behavior	Research and Communication Methodologies and Tools	Stage 2: successful piloting (PIL - end of piloting phase)	Regional, Sub-Saharan Africa

719 - Aflatoxin mitigation and control: Aflasafe MZ02 for Mozambique	Production systems and Management practices	Stage 3: available/ ready for uptake (AV);	National, Mozambique
720 - Mobile phone-based surveillance system for county veterinarians and community disease reports to report and monitor livestock diseases and syndromes	Biophysical Research	Stage 4: uptake by next user (USE)	Sub-national, Kenya
729 - [updated from 2017] Aflasafe BF01 product for Burkina Faso and potentially 10 other countries in the Sahel	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Burkina Faso
730 - [updated from 2017] Aflasafe product GH01 and GH02 for Ghana	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Ghana
731 - [updated from 2017] Aflasafe product for Nigeria	Production systems and Management practices	Stage 4: uptake by next user (USE)	National, Nigeria
732 - [updated from 2017] Aflasafe product ZM01 and ZM02 for Zambia	Production systems and Management practices	Stage 3: available/ ready for uptake (AV);	National, Zambia
733 - [updated from 2017] Aflasafe product TZ01 and TZ02 for Tanzania	Production systems and Management practices	Stage 3: available/ ready for uptake (AV);	National, United Republic of Tanzania
734 - [updated from 2017] Aflasafe MWMZ01 product for Malawi and Mozambique	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	Multi-national, Malawi, Mozambique
735 - [updated from 2017] Aflasafe MW02 for Malawi	Production systems and Management practices	Stage 2: successful piloting (PIL - end of piloting phase)	National, Malawi
736 - [updated from 2017] Stories of Change approach	Social Science	Stage 3: available/ ready for uptake (AV);	Multi-national, Nepal, Senegal, Vietnam, India, Ethiopia, Bangladesh, Rwanda, United Republic of Tanzania, Zambia
738 - [updated and corrected from 2017] WEAI (Women's Empowerment in Agriculture Index)	Social Science	Stage 3: available/ ready for uptake (AV);	Global
792 - Chaya (native plant known as tree spinach) introduced in school feeding programme in Chiquimula, Guatemala	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Sub-national, Guatemala
793 - Agriculture, Nutrition, and Health (ANH) Academy and ANH Academy Week Conference provide a unique, interdisciplinary conference and community to engage stakeholders around ANH	Research and Communication Methodologies and Tools	Stage 1: discovery/proof of concept (PC - end of research phase)	Global
794 - Farming System for Nutrition (FSN) models in progress of setting up in Ten Krishi Vigyan Kendras (agriculture extension offices) in two Indian States	Production systems and Management practices	Stage 1: discovery/proof of concept (PC - end of research phase)	Sub-national, India

Table 5: Summary of status of Planned Outcomes and Milestones (Sphere of Influence-Control)

FP	Outcomes 2022		Milestone		

		Summary narrative on progress against each FP outcome this year		2018 milestones status or changed	Provide evidence for completed milestones (refer back to means of verification, and link to evidence wherever possible) or explanation for extended, cancelled or changed
F1	F1 Outcome: Partners and other CRPs incorporate nutrition, health and gender in agri-food value chains and food systems programs	FP1 finalised the methodology and analysis of the dietary gap analysis in four key countries and presented these in stakeholder workshops in 4 countries and on international conferences: ANH-Academy Week and Tropentag2018. Based on the identification of Key Research Areas in food system research in Ethiopia, Vietnam, a MSc Grant Call was opened and 6 students in each country received a grant of 4.500 USD to do research linked to one of the components of the food system. A workshop was organised to train the students and their supervisors on food system and healthy diet analysis based on state of the art conceptual frameworks and indicators.	2018 - 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	Extended because milestone was not achieved in all four countries. Methods and tools for diagnosis of dietary gaps developed. Diagnosis and foresight applied in several institutes/universities in Ethiopia, Nigeria, and Vietnam, and started in Bangladesh. Dissemination/training: ANH Academy, Tropentag, Toulouse School of Economics. Further evidence: Ethiopia food systems paper and activities
	F1 Outcome: Partners, including value chain actors, use evidence from impact evaluations when making operational and investment decisions	The 2017 milestone towards this outcome related to Ethiopia and Vietnam, which has continued to progress in 2018. In Ethiopia, partners are using the evidence on food system analysis and the food system framework to (1) develop methodology to collect consumer intelligence on dairy informal markets (Euromonitor) and (2) to develop with IFPRI and WUR a design of a video behaviour intervention with NEED, a local private company. In Vietnam, with the Choices Programme: working with this multi-stakeholder platform together with the Vietnam NIN, CIAT, and private businesses to co-design and evaluate the implementation of front-of-packaging labelling.	2018 - At least 2 partners, including value chain actors, participate in the identification and design of at least 2 gender-sensitive interventions aligned with findings from CoA1 to improve diets in Bangladesh and Nigeria	Complete	PARTEX, a Bangladesh conglomerate working on seed development is working with A4NH to design interventions to expand mung bean production and availability.Federal University of Technology in Akure, Nigeria, works with A4NH on how delivering ready-to-cook green leafy vegetables to consumers using cool boxes on bikes/pushcarts promotes consumption.
	F1 Outcome: Public-private partnerships formed to promote implementation of A4NH strategies for agri-food value chain/food system innovations	A first draft roadmap strategy to involve private sector in food system innovations was developed, based on experience bringing in private sector and also based on the discussions on private sector involvement in food systems during the ANH Academy learning lab session in	2018 - Systematic approach to be used to engage private sector stakeholders in FSHD focus countries	Extended	Following an expert meeting in July 2018, a paper was drafted to guide conceptual thinking about food system innovations and will be published in early 2019, hence the extension of this milestone.

		Ghana in 2018. In addition, a paper on what food system innovations entail is being developed and will be finalised in 2019 as an IFPRI discussion paper and a peer-reviewed scientific paper. Although first initiatives and discussions with private sector started, in 2018 we aligned with one private sector (Unilever) on sustainable nutrition in Vietnam.			
	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	Nigeria: Presentation of dietary gap analysis and foresight work reached at least 8 different government bodies. Ethiopia/Nigeria/Bangladesh: Through three national stakeholder workshops, results of the analysis of Platforms for Healthy Diets were validated and key partners, stakeholders and institutions were made aware of the importance of the existing platforms for raising awareness on healthy diets. Bangladesh/Vietnam: Policy baseline studies were presented during stakeholder workshops contributing to stakeholder awareness of barriers of existing policies. Global: The Bene et al paper (World Development) on food system narratives and discourses was disseminated to stakeholders worldwide.	2018 - 8 stakeholders in relevant policy processes across the 4 focus countries are made aware of A4NH evidence on dietary trends.	Extended	Extended to 2019 because policy baseline in Nigeria has to be finalised and still has to be started in Ethiopia. The validation of platforms for health and nutrition needs to be finalised in Ethiopia, along with presentation of dietary gaps in Ethiopia, Vietnam and Bangladesh.
			2018 - 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	Food system narratives/discourses thoroughly analysed at global level – submitted and published in peer-reviewed journal. Results are being actively disseminated .In Vietnam, policy baseline completed – report available and peer-reviewed-paper submitted. Restitution workshop to present finding to key-actors scheduled. In Bangladesh, policy baseline completed and final report in progress.
			2018 - Strategy to strengthen and develop effective healthy diets platform developed for at least 2 countries	Extended	Report on identifying platforms for healthier diets for Bangladesh and Nigeria finalized (but not yet published online); Research in Ethiopia and Vietnam ongoing and expected to be finalized at the end of 2018.
F2	F2 Outcome: High-yielding micronutrient enhanced varieties developed and released in priority countries	In 2018, iron-biofortified pearl millet was released in Niger and zinc-biofortified maize was released in three more countries in Latin America. In all, 28 new biofortified crop varieties were released, bringing the cumulative number of releases through HarvestPlus efforts to 208 varieties of 11 crops, across 30 countries (with 31 additional countries in testing phase). When orange-fleshed sweetpotato varieties released through the International Potato Center (CIP)	2018 - Recommendations of molecular marker external review implemented	Complete	Since the review, a molecular marker meeting was held in February 2018 at CIAT. Summary notes from that meeting list several areas for implementation and other actions. A selection of outcomes from those recommendations are listed in the meeting report. In addition, here's a related abstract .

		are included, this figure increases to more than 300 varieties of biofortified crops.			
	F2 Outcome: Biofortification mainstreamed into CGIAR and NARS breeding efforts	Mainstreaming strategies were developed for biofortified zinc wheat and zinc rice by HarvestPlus, CIMMYT, IRRI. These strategies will be adopted by CGIAR centers and National Agricultural Research Systems (NARS) in efforts to initiate mainstreaming of these crop varieties in their breeding programs.	2018 - 3 crop breeding programs establish/review mainstreaming targets and plans for each target crop/agroecology	Extended	1 is complete (CIMMYT zinc wheat). 3 in progress (CIAT iron beans, ICRISAT iron pearl millet, IRRI zinc rice). Report for zinc wheat can be made available upon request.
			2018 - 2.5% annual increase in mainstreaming as a percentage of total CGIAR Center efforts for target crop/agroecology	Extended	Data on mainstreaming efforts by CGIAR Center has not been updated since 2016.
	F2 Outcome: High-yielding micronutrient enhanced varieties delivered at scale in priority countries	4.5 million farming households were reached with biofortified planting material in 10 target countries in 2018, bringing the total number of farming households growing and consuming biofortified crops globally to 7.6 million. The goal is to reach 20 million households by 2020.	2018 - 7.5 million HH in HarvestPlus priority countries growing and consuming biofortified crops	Complete	Based on the HarvestPlus global households reached projection model described here and here .
	F2 Outcome: Evidence on nutritional efficacy and impact informs value chain actors, as well as national and international investors	Learnings shared with partners (ranging from World Bank and Inter-American Development Bank HQs in DC to local civil society organizations in rural Nigeria) in various fora and format to enable development of equitable and cost-effective deliverable plans.	2018 - Partner and implementing organizations use lessons learned about factors (e.g., gender, equity) facilitating and hindering adoption and consumption of biofortified crops to develop equitable and cost-effect delivery plans	Complete	Examples of achievement in 2018 are below: We continue to share the AJFAND special issue with various partners (e.g. GAIN) to help with implementation of biofortification in various countries. CGIAR Biofortification Strategy developed based on lessons learned from target countries.
	F2 Outcome: Biofortification supported by global institutions and incorporated into plans and policies by stakeholders	Burundi and China included biofortification in their national strategies; African Union (AU) endorsed the recommendation on biofortification; World Food Programme (WFP) has incorporated biofortified crops in programmes in various countries in Africa and Latin America and the Caribbean; Inter-American Development Bank (IADB) included biofortification in loans to Haiti; information on World Bank loans pending.	2018 - Biofortification included in 3 national/regional policies and 3 country grants/loans from IFIs	Complete	Multi-Sectoral Nutrition Action Plan 2018-2025 by ADBAfrican Union Executive CouncilPAN African Parliament Resolution on Nutrition and Food Systems in Africa10th Africa Task Force on Food and Nutrition Development MeetingIFAD - Developing Nutrition-Sensitive Value Chains in Indonesia brochureIFAD - Developing Nutrition-Sensitive Value Chains in Nigeria brochure
F3	F3 Outcome: Key food safety evidence users (donors,	Our food safety evidence is being used by governmental agencies and donors that due to	2018 - East African Community supports standardized and	Complete	The East African Community officially launched nine policy briefs on topics related to crop contamination

	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	space limitations we cannot list. We described several recent cases in OICR2730 A4NH research informs the design of a $13 million investment in improving food safety; in OICR2780 East African Community (EAC) uses aflatoxin technical papers to prepare aflatoxin policy briefs that are endorsed by the Council of Ministers; and in OICR2782 Aflasafe products to reduce aflatoxin crop contamination are now registered in eight countries.	harmonized policies and regulations for aflatoxins following policy support process		with aflatoxins and its control. The policy briefs contain key recommendations on strategic policy action and interventions required to mitigate impacts and effects of aflatoxin along the food and feed value chains.
			2018 - Through PACA, 3 countries include Aflasafe as a component for aflatoxin mitigation in National Agriculture Investment Plan	Complete	Six countries where the Partnership for Aflatoxin Control in Africa (PACA) works - Malawi, Nigeria, Tanzania, Senegal, Gambia and Uganda - prioritized aflatoxin mitigation strategies , including use of Aflasafe as a mitigation tool, developed stakeholder-aligned aflatoxin control action plans, and mainstreamed them into National Agriculture and Food Security Investment Plans.
			2018 - Policy stakeholders endorse or commit to approaches that draw on A4NH evidence on food safety in informal markets to consider improvements to specific value chain(s)	Complete	Major stakeholders commissioned ILRI to develop key papers: US Agency for International Development (white paper on food safety); Bill and Melinda Gates Foundation/UK Department for International Development (food safety investment report), Agriculture Nutrition and Health Academy (food safety metrics); and Chatham House (animal source foods in the first 1,000 days).
	F3 Outcome: Biocontrol and GAP delivered at scale in key countries along with understanding of their impact and appropriate use	Aflasafe products are now registered in eight African nations. Use of aflatoxin management strategies are part of the National Agricultural Investment Plans of six nations. Commercialization activities have commenced in most of those nations. The process is accompanied with intensive awareness and sensitization campaigns to understand what aflatoxins are, the contamination process, and effective mitigation strategies centered on use of Aflasafe. During both testing phase and commercial usage of Aflasafe, use of Aflasafe products along with good agronomic practices resulted in most crops containing little to no aflatoxin content. Due to space limitations, we are unable to provide further details.	2018 - At least 40 farm-based organizations obtain 5% premium or more from sale of Aflasafe maize and groundnut due to market linkages created by innovation platforms	Complete	Recent evaluation: average smallholder income from maize increased by $318 (16% per farmer); consumption of Aflasafe-treated maize increased an average of 20g/day. Groundnut and maize farmers in Nigeria produced crops which contained less than 4 ppb total aflatoxins and could be sold in stringent European markets. More evidence here and here .
F4	F4 Outcome: Development program implementers and	(1) The Alive & Thrive (AT) initiative is using the 2018 review on nutrition sensitive agriculture	2018 - At least 3 implementing organizations use evidence	Complete	(1) Link to email from AT staff: (2) Most recent proposal from WFP Sri Lanka on a school meals

	investors (governments, NGOs, UN institutions) use evidence, tools and methods to design and implement cost-effective nutrition-sensitive agricultural programs at scale	(NSA) to inform their NSA work in the second generation of the initiative. An AT staff member cites what A4NH evidence has been used and how in AT in Ethiopia. (2) The World Food Programme (WFP) is using the nutrition-sensitive guidance developed under our partnership to design more nutrition-sensitive programs and proposals. (3) Findings from a study in Malawi are being used to inform a World Bank investment in Malawi to support the government in improving and scaling-up the model.	generated in Phase 1 of A4NH in programming of nutrition- and gender-sensitive agriculture programs		program (citing A4NH evidence in the design): (3) A4NH findings were cited in investment report but it is not publicly available.
	F4 Outcome: National policymakers and shapers, and stakeholders from different sectors, civil society and industry use evidence to design effective nutrition-sensitive policies, and ensure quality implementation	Structured, step-wise priority-setting process adopted for regional initiative (Transform Nutrition West Africa) during its inception phase. The process was applied to inform priorities for the intiatives' focus in the implementation phase in the West Africa region and four focal countries (Nigeria, Burkina Faso, Ghana, and Senegal). Gender focus was not relevant to the application of the process in this case.	2018 - Gender-sensitive diagnostic and priority-setting tools developed and applied in 3 focal countries	Complete	The "5PD Process" applied in a regional consultation for West Africa: search for data, information, and research on the Problems (prevalence and drivers), Policies, Programs, People (stakeholders and organisations) and their Priorities. More details in the Inception Report ; p.36 describes how this was used in that regional consultation with nutrition stakeholders.
	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-sensitive policymaking and implementation.	Five major regional capacity building events mainly reaching people across Sub-Saharan Africa, but also in Asia and beyond, were completed in 2018, which cannot be explained in much detail here due to the word limits. (1) Joint event with Scaling up Nutrition (SUN) Secretariat and others at the FAO-IFPRI event in Bangkok. (2) Pre-conference symposium at Africa Nutrition Epidemiology Conference. (3) With African Nutrition Leadership Programme (ANLP), workshop on "Leading Change in Nutrition". (4) Contributed to ANLP 2018. (5) Learning Lab atANH Academy on "Collaborate: A Team Player Game to Tackle Food System Challenges" with London School of Hygiene and Tropical Medicine.	2018 - FP4 researchers with key partners from SUN, CAADP and others host at least one regional learning event involving participants from at least four focal countries and other CGIAR/CRP researchers	Complete	(1) Event at FAO-IFPRI(2) ANEC(3) ANLP here and here(4) ANLP here(5) Learning Lab at ANH2018

F5	F5 Outcome: Agricultural practices modified to reduce health risks	Rice farming is likely to expand in West Africa to improve food security. Changing diets and increasing demand for animal source foods will alter agricultural systems, leading to increased risk of agriculture associated diseases. In Accra, we held an intersectoral workshop to discuss the expected impact on infectious disease. Rice and malaria emerged as a clear focus. An updated review comparing malaria in villages with and without rice indicated that recent suppression of malaria by vector control means that residual transmission tends to be higher in rice villages. With AfricaRice, we've designed an overall joint strategy to assess these effects.	2018 - Workshop convening senior national and sub-regional experts from the health, agriculture and environmental communities to discuss research priorities, including gender and equity issues.	Complete	June 2018 workshop report in Accra after the Agriculture Nutrition Health Academy week: involved 33 people from 30 institutions across West Africa. Four case studies were presented: (i) rice and infectious disease, (ii) zoonotic diseases, (iii) agrochemicals, agriculture and health and (iv) urban agricultural systems and disease.
	F5 Outcome: Agricultural and public health policymakers and implementers deliver coordinated and effective solutions to cysticercosis and other zoonotic threats	One promising solution for controlling cysticercosis is a semi-commercialized pen-side diagnostic assay. A series of studies in 2018 found it not to be effective. Proof of concept with a different partner will be begin in 2019. Progress related to other zoonotic threats: (i) research on brucellosis contributed to the ongoing development of a national brucellosis policy, in Kenya and Tanzania; key A4NH researchers participate in the national policy review committees; and (ii) research showed the environmental limits of Rift Valley fever (RVF), which guided refinement of RVF decision support tools governments can use for interventions.	2018 - Stakeholders (farmers and field veterinarians) have access to a validated and semi-commercialized pen-side diagnostic assay for cysticercosis	Extended	The pen-side test that was available was piloted in 2018, but poor results were produced. We will commence new work on proof of concept with a different partner in 2019.
	F5 Outcome: Public and private sector policymakers implement measures to reduce human and animal health risks from antimicrobial resistance and other interactions	Greater attention to antimicrobial resistance (AMR) is accelerating progress. In 2018, with partners, we progressed in establishing the CGIAR AMR Hub, which was officially launched in February 2019, and developing a CGIAR AMR strategy. Vietnam and Kenya started implementation of their national action plans, which includes measures to reduce AMR; A4NH researchers contribute to implementation	2018 - Decision makers in Kenya, Uganda, and Vietnam engaged in discussion of research results on antimicrobial use patterns in livestock agricultural systems and the impact on resistance	Complete	Workshop in Uganda: participants from all target countries. Methods from eight studies (Vietnam, Cambodia, Thailand, Ethiopia, Uganda, Tanzania, Malawi) by veterinary and public health were compared. Consensus: how to design surveillance systems for national action plans. Workshops in Kenya led to the development of draft surveillance plans for the agriculture sector.
			2018 - CGIAR AMR platform compiling agricultural-	Extended	Significant planning and partnership building took place during 2018. The CGIAR AMR Hub was

		discussions. A high level meeting was held in Jaipur (India) to facilitate regional research – policy dialogue. With CRP on Livestock, workshop in Uganda reviewed methodologies for measuring antimicrobial use, explored whether it may be possible to generate comparable data through unifying methods.	associated AMR research data established, maintained, and used by internal and external stakeholders		officially launched February 2019 and the associated website went live. Research outputs are presented as 'research highlights' on the website illustrating how the CGIAR AMR strategy is implemented and will become a go-to source for AMR information.
	F5 Outcome: Agricultural research and funding institutions initiate collaboration with public health counterparts to solve complex intersectoral problems	Workshops, in addition to several meetings and interactions, were held in 2018 to engage both agriculture and public health in A4NH research. One event was held around the 2018 World Water Week in Stockholm, co-organized with the CRP on Water, Land and Ecosystems (WLE), Deltares, and The Bridge Collaborative. These meetings support resource mobilization efforts across the flagship. For example, at least two major proposals were prepared for the Wellcome Trust, which were awarded in late 2018/early 2019. The annual ANH Academy Week conference also offers a platform for sharing research and building partnerships across agriculture and health.	2018 - At least 10 research organizations representing natural and social scientists from health and agriculture participate in theme-based workshops which recognize gender and equity issues, and build on partnerships identified in 2015 A4NH regional consultations	Complete	2018 World Water Week event in Stockholm brought together participants (almost entirely environmental scientists and practitioners) to present recent interdisciplinary research and examine a case study on malaria-irrigation. This interaction with health issues was new. ANH Academy Week brought together 343 participants from 138 agriculture and health institutions in 49 countries.

Table 6: Numbers of peer-reviewed publications from current reporting period (Sphere of control)

	Number	Percent
Peer-Reviewed publications	148	100.0%
Open Access	124	83.78%
ISI	134	90.54%

Table 7: Participants in CapDev Activities*

*This information was under-reported to A4NH by nearly all Managing Partners. For the 2019 report, we will explore ways to overcome this.

Number of trainees	Female	Male
In short-term programs facilitated by CRP/PTF	1,318	956
In long-term programs facilitated by CRP/PTF	10	10

Table 8: Key external partnerships

Lead FP	Brief description of partnership aims (30 words)	List of key partners in partnership. Do not use acronyms.	Main area of partnership (may choose multiple)
F1	Promote cultivation and consumption of of underutilised nutrient-rich biodiversity by providing evidence, influencing policy, and raising awareness in Brazil, Kenya, Turkey, and Sri Lanka	• GEF - Global Environment Facility • FAO - Food and Agriculture Organization of the United Nations • Ministry of Environment and Forestry (Kenya) • KALRO - Kenya Agricultural and Livestock Research Organization • SINGI - Sustainable Income Generating Investment Group • MALF - Ministry of Agriculture, Livestock and Fisheries (Kenya) • MoH - Ministry of Health (Kenya) • EMBRAPA - Empresa Brasileira de Pesquisa Agropecuária • INPA - National Institute for Amazonian Research • MMA - Ministry of the Environment (Brazil) • MDS - Ministry of Social Development and Fight Against Hunger (Brazil	• Research • Policy
F1	To develop national food-based dietary guidelines for Ethiopia	• FAO - Food and Agriculture Organization of the United Nations • MoANR - Ministry of Agriculture and Natural Resources (Ethiopia) • Federal Ministry of Health (Ethiopia) • EPHI - Ethiopian Public Health Institute • EIAR - Ethiopian Institute of Agricultural Research • Ethiopian Ministry of Education	• Research • Policy
F1	To co-design and evaluate the implementation of a front-of-packaging labelling of food products to improve nutrition awareness and healthy choices in Vietnam	• Choices International Foundation • NIN - National Institute of Nutrition, Vietnam	• Delivery • Research
F1	Through an MSc grant scheme, engage and build capacity of young researchers and their supervisors from local universities in food system related research	• NIN - National Institute of Nutrition, Vietnam • Ambo University • Mekelle University • VNUA - Vietnam National University of Agriculture • CASRAD - Centre for Agrarian Systems Research and Development • UQ - University of Queensland • Hue University of Medicine and Pharmacy • AAU - Addis Ababa University	• Capacity • Research

F2	To develop a joint approach (strategy and planning) to commercializing biofortification in different contexts	• GAIN - Global Alliance for Improved Nutrition	• Delivery
F2	Implementation and assessment of delivery for the supply of biofortified crops (extension services, farmer organization and training) in Bangladesh, Kenya, and Vietnam	• WVI - World Vision International • Mercy Corps • BRAC	• Delivery
F2	Public private partnerships for the supply and demand of biofortified crops/foods in Bangladesh and India	• PRAN Foods Ltd. • Nirmal Seeds Pvt Ltd	• Delivery
F2	To produce and multiply certified seed of released varieties of iron beans for delivery to farmers in Rwanda	• Abishyizehamwe • COAEBU Cooperative • RAB - Rwanda Agriculture Board • RISCO - Rwanda Improved Seed Company • IMPAKOMU Cooperative • IZMGM Agricultural Cooperative • Kaboku Cooperative • Kohiika Cooperative • Kopamunya Cooperative • Kotebaru Cooperative • Subiza Cooperative • UATA Cooperative • UMUCYO Cooperative	• Delivery
F3	To support and promote standardized and harmonized policies and regulations for aflatoxins.	• USAID - U.S. Agency for International Development • EAC - East African Community	• Policy • Capacity
F3	To develop stakeholder aligned aflatoxin control action plans and mainstream them into National Agriculture and Food Security Investment Plans in countries countries which have already prioritized aflatoxin mitigation strategies.	• PACA - Partnership for Aflatoxin Control in Africa	• Policy
F3	Develop and evaluate light-touch market-based approaches to improving food safety, while safeguarding livelihoods and reducing the burden of food-borne disease in informal, emerging, and niche pork markets in Vietnam	• VNUA - Vietnam National University of Agriculture • ACIAR - Australian Center for International Agricultural Research • HSPH - Hanoi School of Public Health • The University of Sydney • NIAS - National Institute of Animal Sciences • RVC - Royal Veterinary College	• Research • Policy • Capacity

F3	Contributions to global, regional and national investments in food safety	• The World Bank • BMGF - Bill & Melinda Gates Foundation • DFID - Department for International Development (United Kingdom) • USAID - U.S. Agency for International Development • FAO - Food and Agriculture Organization of the United Nations • WHO - World Health Organization	• Policy • Capacity • Research
F4	Through Transform Nutrition West Africa, improve and support policy and program actions to accelerate reductions in maternal and child undernutrition, achieved through an inclusive process of knowledge generation and mobilization.	• University of Sheffield • UG - University of Ghana • IDS - Institute of Development Studies • DataDENT - Data for Decisions to Expand Nutrition Transformation • NWU - North-West University • A&T - Alive & Thrive • UNICEF - United Nations Children's Fund • SUN - Scaling Up Nutrition Movement • ECOWAS - Economic Community of West African States • ReSAKSS - Regional Strategic Analysis and Knowledge Support System • Université de Ouagadougou • BMGF - Bill & Melinda Gates Foundation • Countdown to 2030 • CAADP - Comprehensive Africa Agriculture Development Programme • ALN - African Leaders for Nutrition Initiative	• Research • Policy • Capacity
F4	Address evidence gaps related to effects of agricultural interventions on maternal and child nutrition, specifically, to assess impact of incorporating a behaviour change communication strategy into an agricultural credit program	• DATA - Data Analysis and Technical Assistance Limited • BRAC	• Research
F4	Adapt and validate a measure of women's empowerment that agricultural projects can use to diagnose areas of women's (and men's) disempowerment; design strategies to monitor project outcomes; and build capacity.	• AWARD - African Women in Agricultural Research and Development • BRAC • OPHI - Oxford Poverty and Human Development Initiative • Radical Inclusion • GREAT	• Research • Capacity
F4	To improve the availability, access, and use of nutrition implementation knowledge in Scaling up Nutrition (SUN) countries	• SUN - Scaling Up Nutrition Movement • SISN - Society for Implementation Science in Nutrition	• Capacity

F5	To determine resistance of mosquitoes breeding around different crops in West and Central Africa; identify which system has a greater risk of contributing to resistance in mosquitoes that transmit malaria	• LSTM - Liverpool School of Tropical Medicine • University of Crete	• Research
F5	To develop a system to classify animal diseases by economic impact that includes production losses, expenditure, wider economic impacts including health health, plus human reaction to disease presence or risk	• University of Zurich • University of Liverpool • OIE - World Organisation for Animal Health • BMGF - Bill & Melinda Gates Foundation • DFID - Department for International Development (United Kingdom) • FAO - Food and Agriculture Organization of the United Nations • UW - University of Washington • WSU - Washington State University • Murdoch - Murdoch University	• Research
F5	Foster knowledge exchange, innovation and learning around a series of annual events for researchers and users of research working at intersection of agriculture, nutrition and health called ANH Academy	• IMMANA - Innovative Methods and Metrics for Agriculture and Nutrition Actions • LSHTM - London School of Hygiene and Tropical Medicine • DFID - Department for International Development (United Kingdom) • African Nutrition Society • UG - University of Ghana	• Capacity • Research
F5	To develop a One Health Regional Network – individuals and organisations in the Horn of Africa that can undertake high quality research into links between people's health, wealth, livestock, environment.	• AAU - Addis Ababa University • ISTVS - IGAD Sheikh Technical Veterinary School and Reference Centre • LSTM - Liverpool School of Tropical Medicine • UoN - University of Nairobi • University of Liverpool • HAC - Hamelmalo Agricultural College	• Research • Capacity

Table 9: Internal Cross-CGIAR Collaborations

Brief description of the collaboration	Name(s) of collaborating CRP(s), Platform(s) or Center(s)	Optional: Value added, in a few words
To understand consumer demand and market segmentation for processed maize and wheat products in urban and peri-urban Mexico and to explore opportunities for future research to improve nutritional content and mitigate harmful effects.	CIMMYT, Maize, Wheat	Cereal-based processed foods are important in food system transformation. This is an initial project between A4NH and CIMMYT to explore how to engage industry in improving nutritional value of these products linking both demand and supply considerations.
To incorporate diet considerations into economy-wide scenarios for transition to a low-carbon, hunger-free Bangladesh.	CCAFS	To support policymakers by balancing messages on both health and sustainable diets for coordinated climate-smart and nutrition-smart policies and investments.
To harmonize the monitoring and evaluation of scaling up/commercialization of HarvestPlus varieties and CIP's orange fleshed sweetpotato.	RTB, CIP	This new arrangement will provide important lessons learned for CGIAR to improve monitoring and evaluation systems for scaling up/commercialization of CGIAR innovations.
To support targeted breeding of priority biofortified varieties in global and national delivery linked to the HarvestPlus program, which leads Flagship 2 in A4NH	IITA, IRRI, GLDC, Maize, Rice, Wheat, CIAT, CIMMYT, ICARDA, ICRISAT	At present, there is a transition from targeted breeding for biofortification to mainstreaming biofortification in main crop breeding programs. Some targeted breeding will continue for an interim period, varying by crop.
Promote use of the most comprehensive, nationally representative household survey ever conducted in Bangladesh, the Bangladesh Integrated Household Survey. In 2018, this included work on determinants of adolescent nutrition and the nexus between farm diversification and diet diversity .	PIM	Through IFPRI's Bangladesh Policy and Research Strategy Support Program (PRSSP), A4NH works with PIM on joint analysis and dissemination of results as a way of improving how policy options are understood, discussed, and implemented.
Joint work on nutritional insights and outcomes in Bangladesh	PIM	PIM funds social protection evaluations and other household studies which enable further analyses of nutritional dimensions led by A4NH.
Further development of tools tailored to different types of users based on the Women's Empowerment in Agriculture Index (WEAI)	PIM	A4NH contributes to the development of the project-level WEAI (Pro-WEAI) and PIM to the development of the Abbreviated WEAI (A-WEAI) and forthcoming WEAI for value chains (WEAIVC)
To design the CGIAR Antimicrobial Resistance Hub and plan its launch (February 2019). With these same partners, collaborative activities were initiated in 2018 to design research that can link all animal uses of antibiotics to human antimicrobial resistance (AMR).	Fish, Livestock, WLE, WorldFish, IWMI	AMR is a huge global issue and the fish and livestock sectors use large quantities of antibiotics. CGIAR coordination provides valuable agricultural research and national partnerships to this global effort.
Flagship 5 launched new research with AfricaRice to build disease management strategies into rice intensification programs in West Africa. More specifically, the joint fieldwork, which will begin in 2019, has been designed to track mosquito productivity of alternative irrigated rice cultivation techniques, in order to identify how to grow rice in Africa without growing deadly mosquitoes, and to assess effects of landscape-change on the vectoral capacity of malaria vectors.	AfricaRice	Irrigation for rice will be a major investment in Africa. How this can be done to minimize malaria risk is a critical public health contribution.

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

Studies/learning exercises planned for this year (from POWB)	Status	Type of study or activity	Please include links to MELIA publications here.
S221 - Evaluation of impacts of two enhancements to a rural self-help group model intervention in Bihar, India (JEEViKa), intervention designs of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: The client asked to delay the endline survey to prolong implementation. Evaluation of impacts of two enhancements to a rural self-help group model intervention in Bihar, India: more intense BCC and improved access to and utilization of key public services
S231 - Evaluation of mobile phone technology-based nutrition and agriculture advisory services in Tanzania (mHealth) and Ghana (mAgri), intervention designs of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Baselines completed https://opendocs.ids.ac.uk/opendocs/handle/123456789/13936 https://opendocs.ids.ac.uk/opendocs/ds2/stream/?#/documents/3673661/page/1
S241 - Cluster RCT to assess health and nutrition benefits of informal dairy sector intervention in Nairobi, an intervention designed by CGIAR	On Going	Effectiveness study (development project- level adoption and impact studies)	Joint b/w FP3 and FP4
S251 - Evaluation of an integrated package of nutrition and agricultural interventions on diets, health, and nutritional status of women and children...designs of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	Evaluation of impact of an integrated package of nutrition and agricultural interventions on diets, health, and nutrition status of women and children in Burkina Faso
S281 - Impact evaluation comparing four different modalities to integrate nutrition with agricultural programs in Bangladesh and India, intervention designs of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	Evaluation of four treatment arms comparing different modalities to integrate nutrition with agricultural programs with and without nutrition sensitive ag extension and male sensitization in Bangladesh and India
S311 - Evaluation to assess the feasibility of integrating a package of maternal nutrition interventions in existing...health services in India, intervention designs of which CGIAR made contributions	On Going	Program evaluation (including project evaluations)	2018: The process evaluation will be done in 2019 due to program delays
S321 - Evaluation of an intervention strategy (of which CGIAR made contributions) that embeds a package...in Mali and Burkina Faso; in Senegal, an evaluation of the feasibility...	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Delays due to the complexity of the analysis of the combined longitudinal and cross-sectional studies and the interpretation and write-up of those findings. Evaluation of an intervention strategy (of which CGIAR made contributions) that embeds a package of behavior change modification and small-quantity lipid-based nutrient supplements in Mali and Burkina Faso; in Senegal, an evaluation of the feasibility of such an intervention strategy (of which CGIAR made contributions)
S331 - Evaluation of household-based approach to improve nutritional status of women and children under two years of age...an intervention design of which CGIAR made contributions	Cancelled	Effectiveness study (development project- level adoption and impact studies)	2018: Funding was cancelled. Evaluation of household-based approach to improve nutritional status of pregnant and lactating women and children under two years of age in Nepal plus research to inform interventions designed to reach and benefit adolescents

S341 - Evaluation research to strengthen understanding of pathways through which self-help groups can improve nutrition through agriculture-nutrition interventions in India, designs of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Mid-line data collection has been completed. Link to paper on determinants of the relationship between SHG membership, social networks, political participation and governance, and determinants of women's aspirations in rural India: http://ebrary.ifpri.org/cdm/singleitem/collection/p15738coll5/id/6088/rec/2
S381 - Process evaluation of a mobile phone innovation in the Integrated Child Development Services program in India, an intervention design of which CGIAR made contributions	On Going	Program evaluation (including project evaluations)	2018: A draft report is being finalized and papers being written
S391 - Maternal nutrition evaluation to gain insights on diets and nutritional practices during pregnancy in India, an intervention design of which CGIAR made contributions	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Baseline survey was completed in 2018.
S651 - Ex ante impact assessment on policy and informal milk sector in Kenya	On Going	Other	2018: work has been completed and publication of results is expected in 2020
S681 - Study on uptake of Aflasafe by farmer groups	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Ongoing; Aflasafe is a CGIAR co-innovation with USDA. It is one of A4NH's major innovations and THE major innovation being scaled out through Flagship 3.
S731 - Ex ante impact assessment on standards and aflatoxin	On Going	Other	2018: work was completed and published in Global Food Security - https://cgspace.cgiar.org/handle/10568/96972
S861 - Adoption study for zinc rice in Bangladesh	On Going	Adoption study: Ex-post adoption survey (at scale)	2018: work is ongoing
S871 - Outcome case study (from monitoring surveys) for vitamin A maize in Nigeria	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: work is being finalized
S1801 - Outcome case study (from monitoring surveys) for iron beans in Colombia	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: Beintema, JJS; Gallego-Castillo, S; Londoño-Hernández, LF; Restrepo-Manjarres, J;Talsma, EF. 2018. Scaling-up biofortified beans high in iron and zinc through the schoolfeeding program: A sensory acceptance study with schoolchildren from two departments in southwest Colombia. Food Science & Nutrition. 6:1138-1145.
S1811 - Socio-economic component of the effectiveness/impact evaluation study for iron beans in Guatemala to measure adoption and iron intake outcomes	On Going	Effectiveness study (development project- level adoption and impact studies)	2018: work is being finalized
S1821 - External evaluation of the impact of A4NH and IFPRI research (2003 to 2016) on nutrition, health, and agriculture programs, policies and global dialogue	On Going	Program evaluation (including project evaluations)	External evaluation of the impact of A4NH and IFPRI research from 2003 to 2016 on the critical links between nutrition, health, and agriculture, including the impact on programs and policies and global dialogue. The evaluation looked specifically at A4NH Flagship 4 and an IFPRI research program called Diet Quality and Health of the Poor (GRP24). This is joint evaluation/impact assessment between the A4NH PMU and IFPRI.

S1831 - External evaluation of progress on mainstreaming of nutrition in CGIAR breeding programs	On Going	Program evaluation (including project evaluations)	A4NH has delayed planning this CCEE pending the development of a new CGIAR Biofortification Strategy, which is being coordinated by HarvestPlus. Another factor in the postponement is that agreement around mainstreaming for nutrition in CGIAR more broadly is ongoing. HarvestPlus/A4NH will then design and commission the external evaluation guided by the new strategy.
S1851 - Review and possible revision of HarvestPlus' M&E system to align with their new strategic plan	On Going	Other	This review is being led by Devesh Roy from the PMU in cooperation with FP2.
S1861 - Stakeholder Workshops on Equity to share results of an external review on equity in A4NH and inform priorities for future research	On Going	Other	The stakeholder workshops, and the GEE unit more broadly, supports A4NH contributions to several parts of the SRF, not just these sub-IDOs or SLOs, but MARLO forces us to make a selection.

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

*This information was provided in the 2017 Annual Report. All of that information remains unchanged.

Name of the evaluation	Recommendation number (from evaluation)	Text of recommendation (can be shortened)	Status of response to this recommendation	Concrete actions taken for this recommendation.	By whom (per action)	When (per action)	Comments (including expenditure, where relevant – relate this back to predicted budgetary implications in the management response to the evaluation)

Table 12: Examples of W1/2 Use in this reporting period (2018)

Please give specific examples, one per row (including through set aside strategic research funds or partner funds)	Select broad area of use of W1/2 from the categories below - (drop down) Select only one category.
• Initial research conceptualization in vegetable availability, accessibility, losses and influencing demand; • Food systems foresight modeling • Further development of the biofortification prioritization index • Rapid assessment of food safety in Cambodia and Bangladesh to support development of a research and development agenda • Ex-ante analysis of food safety impacts in India • Design of rice irrigation and malaria studies	Pre-start up
National food system assessment and dietary gaps in 4 focus countries; food consumption and supply in rural, peri-urban and urban transects Evaluation of food safety interventions to improve livestock value chains (with Livestock CRP); Food safety metrics and people-focused food safety investments. Completion of analysis and publication of 1st aflatoxin control – stunting randomized trial Zoonoses risk and intervention studies including risk assessment of ebola infections in pigs Co-funding development of Project WEAI index from a portfolio of 13 nutrition-sensitive agriculture projects.	Research
Commercialization, regulation and delivery channel actions at different stages of Aflasafe delivery to guide investments, partnerships and enabling actions in 13 African countries.	Delivery
• Funding of Power and Participation Research Center in Bangladesh for Food System Policy Baseline • Development/Publication on food system policy narratives • Contributions to MSSRF-led LANSA policy-relevant evidence including final report and special journal issue	Policy
• Publishing and dissemination of nutrition-sensitive agriculture evidence review (2014-17) • Contributions to World Bank food safety investment publications	Other: Dissemination
• Co-funding ANH Academy Week 2018 in Ghana, including several A4NH-led Learning Labs (mentoring the next generation of ANH researchers) • PhD programs for food system researchers from focus countries • Seed grants for MSc studies from local universities in focus countries. • Support to SUN and CAADP national capacity development for nutrition-sensitive development	Capacity development
• Stakeholder equity consultations with Rome-based agencies, African partners, SE Asian partners and South Asian partners to inform equity research planning and partnerships	Other cross-cutting issues

• Funds allocated for equity small grants in all A4NH flagships (most work started in 2018 but will be disseminated in 2019) • GNIE blog (as a dissemination tool for issues around gender and sometimes youth) • Support to in-country coordination teams in 5 A4NH focus countries to support research teams, provide analyses of country priorities and plans, regularly engage with national partners and advise and support on capacity development and partnership support.	
• Funds allocated to support MELIA harmonization between HarvestPlus and CIP/RTB (to continue in 2019) • MARLO support costs and use in A4NH • Evaluation of Integrated Programs and Policies for Improved Nutrition (to be completed in 2019)	Other Monitoring, learning, evaluation and impact assessment (MELIA)
• A4NH partnership event in Vietnam in March 2018 • A4NH-WUR partnership event (private sector, civil society, and academia at WUR in October 2018 • Strengthening SMEs for bean-based food products • Support to Partnership for Aflatoxin Control in Africa and their strategic workshops and national engagement	Partnerships

Table 13: CRP Financial Report

	Planned Budget 2018*			Actual expenditure*			Difference*			Comments
	W1/W2	W3/Bilateral	Total	W1/W2	W3/Bilateral	Total	W1/W2	W3/Bilateral	Total	
F1 - Food Systems for Healthier Diets	US$ 3,760,000.00	US$ 5,167,228.00	US$ 8,927,228.00	US$ 4,155,787.00	US$ 12,801,555.00	US$ 16,957,342.00	US$ -395,787.00	US$ -7,634,327.00	US$ -8,030,114.00	This is a new program area, 2018 was its 2nd year. Project expenditures increased in both W1/W2 with new and carryovers funding and in W3/Bilateral grants in a faster than expected increase.
F2 - Biofortification	US$ 3,500,000.00	US$ 36,009,310.00	US$ 39,509,310.00	US$ 4,045,941.00	US$ 30,403,036.00	US$ 34,448,977.00	US$ -545,941.00	US$ 5,606,274.00	US$ 5,060,333.00	The expenditures reflect an evolution in the direction of the HarvestPlus program towards supporting delivery at scale. Overall program expenditures for crop breeding and delivery are decreasing as this funding moves to crop Centers and CRPs for mainstreaming micronutrient breeding. The future funding will likely decline slightly in the short-term and focus on research looking to support evidence for and evaluate delivery at scale.
F3 - Food Safety	US$ 3,500,000.00	US$ 9,285,237.00	US$ 12,785,237.00	US$ 3,719,184.00	US$ 10,066,785.00	US$ 13,785,969.00	US$ -219,184.00	US$ -781,548.00	US$ -1,000,732.00	The increased expenditure in W1/W2 funding was from 2017 carryover. There were some decreases in grant funding for aflatoxin mitigation research (cluster 3).

F4 - Supporting Policies, Programs, and Enabling Action through Research (SPEAR)	US$ 3,765,875.00	US$ 13,349,823.00	US$ 17,115,698.00	US$ 4,092,555.00	US$ 10,880,257.00	US$ 14,972,812.00	US$ -326,680.00	US$ 2,469,566.00	US$ 2,142,886.00	The increased expenditure in W1/W2 funding was from 2017 carryover. The grant portfolio remains strong although there was some decreases in grant funding
F5 - Improving Human Health	US$ 1,880,001.00	US$ 1,676,296.00	US$ 3,556,297.00	US$ 2,036,523.00	US$ 1,659,695.00	US$ 3,696,218.00	US$ -156,522.00	US$ 16,601.00	US$ -139,921.00	The increased expenditure in W1/W2 funding was from 2017 carryover. In 2018 LSHTM included grants (not in 2017).
Strategic Competitive Research grant	US$ .00	US$ .00	US$ .00	US$ .00	US$ .00	US$ .00	US$ .00	US$ .00	US$ .00	There was no strategic competitive research grant.
CRP Management & Support Cost	US$ 2,602,124.00	US$ 572,865.00	US$ 3,174,989.00	US$ 2,472,915.00	US$ 444,015.00	US$ 2,916,930.00	US$ 129,209.00	US$ 128,850.00	US$ 258,059.00	The CRP Management Support cost includes budget and expenditures of the following cross cutting units. The 2018 expenditures of these units is as follows;1. Country coordination and engagement units in the five focus countries lead by managing partners = $257,905 W1/W2 and $444,015 Bilateral grants. 2. Gender, equity and empowerment unit - $258,699 W1/W2 3. Monitoring, learning and evaluation unit - $459,504 W1/W2
CRP Total	**US$ 19,008,000.00**	**US$ 66,060,759.00**	**US$ 85,068,759.00**	**US$ 20,522,905.00**	**US$ 66,255,343.00**	**US$ 86,778,248.00**	**US$ -1,514,905.00**	**US$ -194,584.00**	**US$ -1,709,489.00**	